Commodore® MAGAZINE 64/128 USER'S GUIDE

FILL OUT RUN'S READER SURVEY

RUN

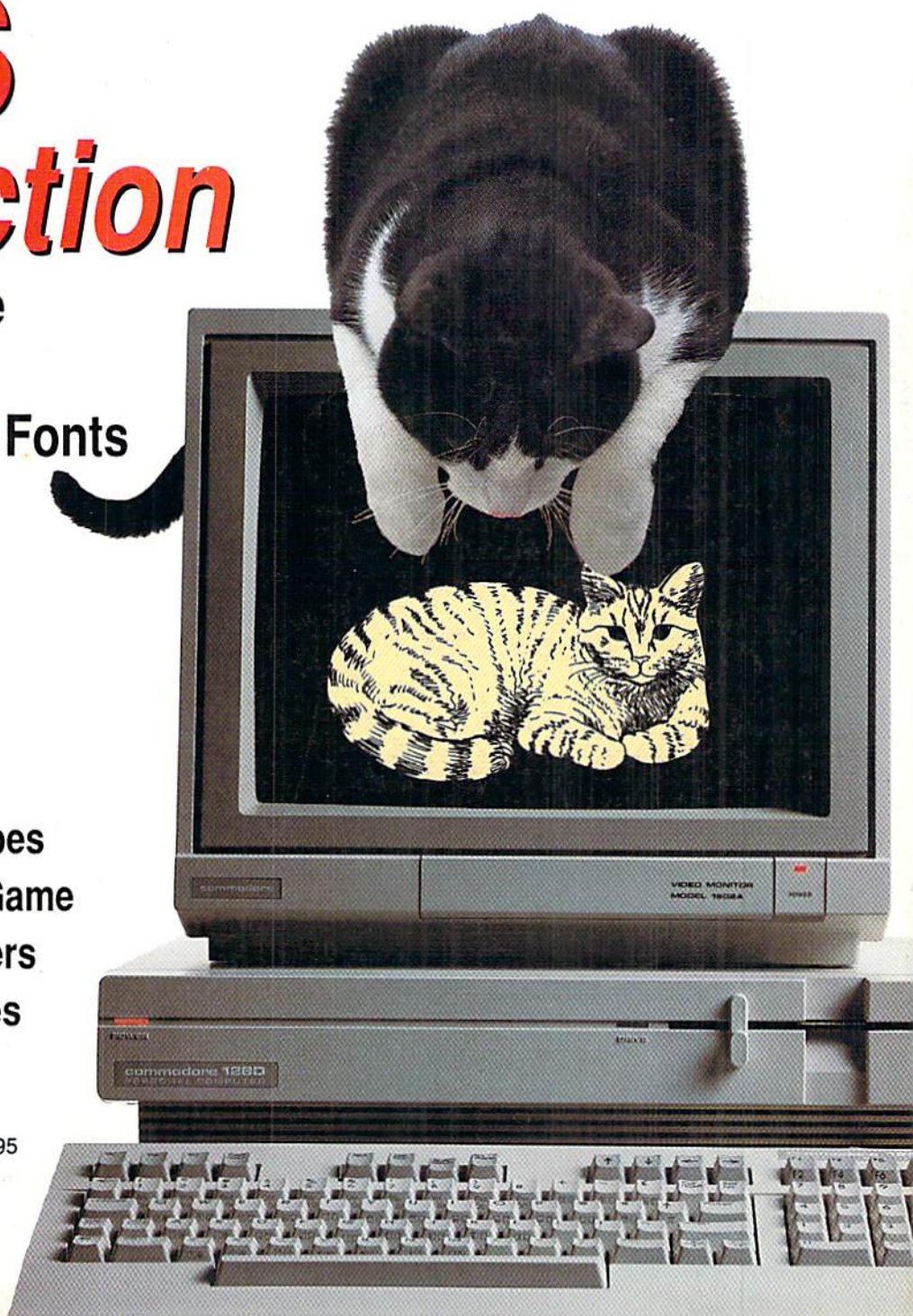
October 1992
An IDG
Communications
Publication

GEOS Purr-fection

- Add Your Favorite Pictures
- Choose the Right Fonts
- Discover a New geoPaint Tool
- Play geoGames

Plus:

- Organize Your Music Tapes
- Classic C-128 Strategy Game
- Program for Puzzle-Lovers
- Pop-up Desk Accessories



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U.S.A. $3.95
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geoCanvas

The Alternative Paint Program for GEOS

While there are a lot of things we could say about this all-new paint program for GEOS, perhaps the features say it best. If you use geoPaint, you NEED geoCanvas!

Available now for $34.95 plus $5.00 shipping

geoCanvas operates in 40 column mode only and requires GEOS 64 V2.0 or GEOS 128 v2.0, one 5.25" disk drive and a minimum of 512K RAM expansion. Compatible with CMD storage devices.

Powerful New Tools
- Draw polygons, connected lines and rays
- Ruler display/tic marks in 100ths of an inch
- Pattern Editor with 36 standard patterns
- Brush Editor with 32 standard patterns
- Grid lines with user definable spacing
- Full window color change feature
- Large font buffer allows for bigger fonts

Bonus Utilities
- ScrapCan to copy and paste large scraps with or without color
- PaintCan you to change the ownership of geoPaintdocuments to geoCanvas

User Interface and Window Controls
- Open up to three documents at one time
- Movable Tool Box for convenience
- Scroll bars and controls with fast updating
- Windows may be resized individually
- Keyboard shortcuts for all menu items
- Convenient close button on windows

Other Special Features
- Threshold control for better page previews
- Full screen mode for viewing entire screen
- File requestor to access fonts and DA's
- Screen blanking saves wear on monitor
- Menu option to display time and date

Eliminates jagged output • Printing resolution up to 360 x 360 DPI (24 Pin), 240 x 216 DPI (9 Pin) GEOCABLE compatible • Allows multiple copy printing • HQ drivers enhance graphic output

Perfect Print LQ is a complete print enhancement package for GEOS that delivers the highest quality dot matrix output possible. Includes a unique print utility and font set for enhancing GEOWRITE documents, utilities for creating fonts, and high quality drivers for other GEOS applications. Improves text and graphic output on virtually all 9 & 24 pin dot matrix printers and supports font attributes such as italics, outline, underline, bold, etc.

Main system (All drivers, utilities, and 7 fonts) **$34.95** • Font Package (42 LQ fonts) **$29.95**
Complete System (Main System & 49 fonts) **$49.95** • Shipping/Handling **$5.00** Canada add **$4.50**

perfect print LQ for GEOS™

Perfect Print LQ operates with most Epson and IBM compatible 9 and 24 pin printers, but does not work with laser, ink jet, bubble jet, RS-232 or strictly Commodore compatible printers. Contact CMD for info on specific models.

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geoMakeBoot

geoMakeBoot makes booting GEOS from nearly all devices and making back-up copies of the GEOS boot disk easy and convenient. Besides being compatible with virtually all CBM compatible devices, geoMakeBoot also eliminates the need for installing some desk accessories and supports CMD Hard Drives, RAMLink and RAMDrive. geoMakeBoot is simple, inexpensive and easy to use. **geoMakeBoot $12.95 + $2.00 shipping**

JiffyDOS

Hi-performance ROM upgrade • Performs all disk accesses up to 15 times faster
Guaranteed 100% compatible • Easy to install on most systems • Built-in DOS Wedge & file copier
(Please specify computer & drive model and serial#.)
JiffyDOS 64 or SX-64 $59.95
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gateWay

A Powerful New Desktop for GEOS 2.0
Task Switching • Three drive support
Access full capacity of HD, RAMLink, RAMDrive, expanded REU's & GEORAM
gateWay 64 $29.95 • gateWay 128 $29.95
gateWay 64/128 Combo $44.95 • Shipping: $5.00

SwiftLink

Provides an industry-standard IBM style serial port that communicates at speeds from 300-38,400 baud and provides reliable communication using Hayes-compatible RS-232 modems. Plugs into the expansion port and includes terminal programs and software for transferring files to other computers.

SwiftLink (Cart.) $39.95 • *SWIFTLink* Cable $9.95
Shipping: US: $6.00 (Cart), $5.00 (Cable), $7.50 (Both)

SID

SID Symphony adds a second complete SID chip to your 64 or 128 and can be attached to your home stereo or amplified speaker systems to provide a whole new dimension in sound. Enjoy hundreds of public domain stereo songs, import MIDI files, or use Compute!s Music System book and SID editor to create original stereo music.

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- **Compact** - All the features you've ever wanted from RAM expansion in a compact unit. Three capacities: 512K, 1 and 2 megabytes. Dimensions: 6"l x 3"w x 1"h.
- **Portable** - The relatively small size of RAMDrive, coupled with its built-in battery pack make it ideal for porting data from one computer to another.
- **Compatible** - Use RAMDrive with GEOS, CP/M, Q-Link, BBS programs, productivity software and more.
- **Non-Volatile** - External power supply eliminates drain on computer power supply and retains data indefinitely. Internal rechargeable batteries retain data up to 7 days.
- **FAST** - Up to 400x faster than a 1541; 20x faster than RAMDOS; Built-in JiffyDOS speeds access to CMD Hard Drives and JiffyDOS-equipped floppy drives.
- **Easy to Use** - Plugs into the cartridge port. Operates like a standard disk drive. File and disk copiers included along with partitioning, support utilities, and new GEOS configure.
- **RD-DOS** - Organize RAM into as many as 30 manageable partitions that emulate 1541, 1571, & 1581 drives or expand to the full RAM capacity with MS-DOS style subdirectories. Autoboot 64 and 128 mode programs. Configurable as any device number from 8 through 30.

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The Ultimate in Mass Storage for the 64/128

- **Capacity** - 20 Mb to 200 Mb capacities enable you to store the equivalent of up to 1250 1541 (170K) disks.
- **Speed** - The fastest Commodore compatible hard drives. Speeds up to 50x faster than a 1541.
- **Compatibility** - Ideal for use with GEOS, CP/M, Q'Link, BBS programs, productivity software and much more.
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- **HD-DOS** - Organize storage into as many as 254 partitions that emulate 1541, 1571, & 1581 drives or expand to 16Mb with MS-DOS style subdirectories.
- **Easy to use** - Connects like a standard drive and easy to read manual explains all facets of drive operation. Comes complete with copiers and maintainence utilities.
- **Packed with convenient features** - The CMD HD Series hard drives come with features like our SWAP buttons, Front Panel Partition Selection, and more.

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HD-100 $799.95 HD-200 $999.95

RAMLink™

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- **Non-Volatile Storage** - Operates on its own external power supply. Optional rechargeable battery back-up retains data even during power outages.
- **Compatible** - Use GEOS, CP/M, Q-Link, BBS programs, productivity software and more. RAM port for connection of REU or GEORAM of any capacity. Pass-thru port supports most cartridges.
- **User Expandable** - Internal RAMCard allows expansion up to 16 Mb by using standard SIMM's.
- **FAST** - Up to 400x faster than a 1541; 20x faster than RAMDOS; Built-in JiffyDOS plus parallel interface to speed access to CMD Hard Drives.
- **Easy to Use** - Plugs into the Cartridge Port. Operates like a standard disk drive. File and disk copiers included along with partitioning and GEOS support utilities.
- **RL-DOS** - Organize RAM into manageable partitions that emulate 1541, 1571, & 1581 drives or expand to the full RAM capacity with MS-DOS style subdirectories.

RAMLink (no RAMCard)	$179.95	Battery w/cable	$24.95
RAMLink (w/ RAMCardII)	$219.95	HD Parallel Cable	$14.95
RAMLink (RAMCardII/RTC)	$239.95	RTC add-on Kit	$29.95
RAMCard II (with RTC)	$79.95	1Mb SIMM	$42.00
RAMCard II (without RTC)	$59.95	4Mb SIMM	$145.00

Ordering Information and Shipping Charges

CMD Hard Drives: Continental US: $25.00 per drive (UPS ground), $35.00 (2nd-Day), $45.00 (Next-Day). Canada: $50.00 (Airmail). COD to U.S. only $5.00 add'l charge. Foreign prices: Add $100.00 to U.S. Retail Price
JiffyDOS: Add $5.50 per order (UPS ground), $10.00 (2nd-Day Air), plus $5.00 for APO, FPO, AK, HI, and Canada, or $15.00 for overseas orders. No add'l shipping if ordered with any hard drive. COD's add'l $5.00
RAMLink: US: $12.00 (UPS), $20.00 (2nd day), COD add $5.00. Canada: $23.00. Foreign: CALL
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Only $19
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Please specify computer and drive when ordering

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Panasonic 1191	269
Star NX1001	179

PRINTERS/9-PIN COLOR

Citizen GX200 (9 pin)	189
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Star NX2415	479
Star NX2420	339

Expand the capabilities of your 64 and 128!

CMD's new RAMLink is an expandable RAM disk, REU interface and more. Plug your REU (1750, 1764, GEORAM) into the RAM port and the separate RAMLink power supply will maintain the contents, even when you turn the computer off! The built-in RL-DOS allows most software to use the REU as a high-speed RAM disk (20X faster than Commodore's RAMDOS.) RAMLink also has a slot for a second second cartridge port peripheral. With the optional RAMCard, the RAMLink can be expanded to a total RAM disk capacity of 16MB! The RL-DOS also includes the JiffyDOS kernal, file and disk copiers, plus much more.

RAMLink unit	**$170**
RAMCard	**$55**
RAMlink w/RAMCard+1MB	**$271**
RAMlink w/RAMCard+2MB	**$319**
Optional Battery Backup	**$24**

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Citizen GX140	299
Citizen GX145 (wide)	429
Star NX2420R	369
Star XB-2410	489
Star XB2415 (wide)	659

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Sharp JX730	2045

PRINTERS/INK JET B&W

CBM1270	249
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Canon BJ330 (360dpi)	699
HP Deskjet 500	529

PRINTERS/LASER

Citizen PN48 Portable	379
HP Laser Series II*P*	964
Okidata 400 Laser	689
Panasonic KXP4420	979
Silentwriter 2 Model 90	1699

1541/1571 DRIVE ALIGNMENT

This excellent alignment program is a must-have for every Commodore owner. Easy to use, it helps you to align your drive so that it runs just as if it were new! The simple instructional manual and on-screen help prompt you through the alignment procedure and help you adjust the speed and head stop of your drives. It even includes instructions on how to load the alignment program when nothing else will load!

Don;t be caught short! We get more Red Label orders for this program than any other program we sell. Save yourself the expense! Order now, keep it in your library, and use it often!

Works on the 64, 128 and SX64 for the 1541, 1571, 1541-II and compatible third party drives.

STILL ONLY $25

LOOKING FOR PROGRAMS MADE JUST FOR YOUR 128?

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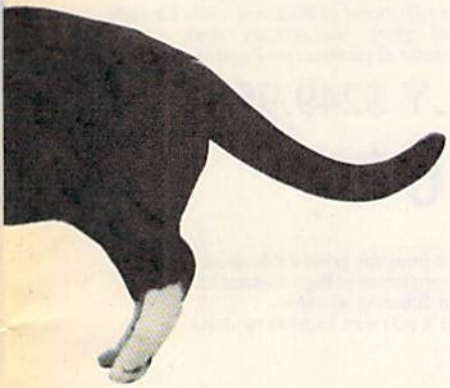

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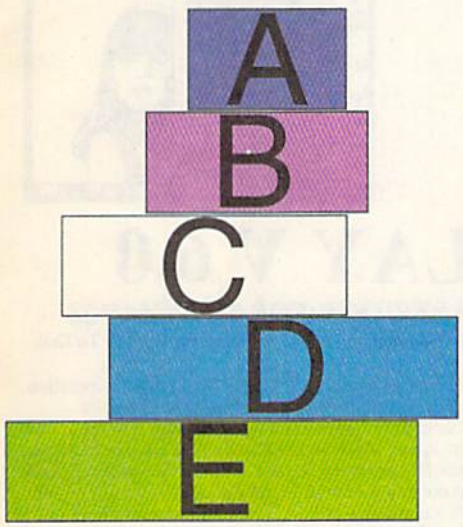

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Fill out this form and alter the course of history (well, make a difference, anyhow).

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As usual, insightful comments, astute corrections and kudos from *RUN* readers.

10 RUN Amok
Oops! A few corrections to July/August's Look and Load program.

10 Users Group Update
New listings and address changes for user's groups around the country.

13 News and New Products *by Janice Crotty*
A new fantasy role-playing game could prove to be the biggest, best one ever!

12 Magic *compiled by Tim Walsh*
The exclusive source for performing Commodore computing wizardry.

28 ProTips *compiled by Janice Crotty*
Hot new tips for WordWriter, the 1351 mouse, converting graphics files, and more.

***29 128 Mode** *by Mark Jordan*
Discover the versatility and power of the Print Using command.

31 GeoWatch *by Foster McCowan*
NewTools, the popular accessory to geoPaint, is now better than ever.

32 Commodore Clinic *by Tim Walsh*
Is geoPublish compatible with GEOS 128? Tim Walsh clears up the mystery.

44 Software Gallery *by John Ryan* Reviews of:
- Free Spirit Graphics Collection
- Cosmi's Solid Gold Entertainment Hits
- Cosmi's Top 20 Software Tools
- Hangman's Hazard

45 Special Software Gallery GEOS Games Report *by Gerry Descoteaux*

47 RUN's Checksum Program
Run it right the *first* time.

48 Curtain Call
Super-quiet technology sets Panasonic's new printer apart from the pack.

*** If type-in programs *RUN* you down, get them pre-typed on the September/October 1992 ReRUN disk. To order, call 800-824-5499.**

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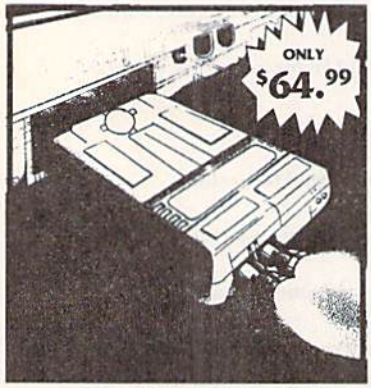

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RUN READER SURVEY

Please take this opportunity to help us assess your computing needs and plan our future issues.

FROM TIME TO TIME, we ask you, our readers, to complete a survey so we can learn more about your changing computing habits and needs. Can you spare a few minutes to answer the following questions?

It's an opportunity for you to let us know what you think—about the magazine, the Commodore market and your computing preferences. Your opinions are important to us. How helpful is *RUN* to you? What would you like to see changed? What peripherals and applications do you use and what are your purchasing intentions?

Please fill out the following survey, cut it out and send it to: ***RUN* Survey, *RUN* Magazine, 80 Elm St., Peterborough, NH 03458**. Your answers to these questions *will* make a difference; they will help us fine-tune the contents of upcoming issues, and provide us with valuable information about reader demographics and characteristics.

Thanks for your assistance and your continued interest in *RUN*.

—The RUN *Editors*

1. Which computing system do you currently own/use? (please check all that apply)

___ C-64 ___ MS-DOS
___ C-128 ___ Macintosh
___ Amiga
___ Other _____

2. How long have you been a Commodore eight-bit user?

___ 1 year or less ___ 1–4 years
___ 4–8 years ___ Over 8

3. Do you belong to a user's group?

___ Yes ___ No

4. Do you use GEOS?

___ Yes ___ No

5. On average, how many program listings do you type in from *RUN* each issue?

___ 0 ___ 1 ___ 2
___ 3 ___ 4 ___ more than 4

6. Do you access the telecommunications networks?

___ Yes ___ No

If Yes, which one(s)?

___ QuantumLink ___ GEnie
___ CompuServe ___ BBSs
___ Other (specify) _____

7. What is your main source of Commodore programs? (check one)

___ Buy commercially
___ Write my own
___ Download from networks/BBSs
___ Borrow/trade/user's group
___ Type in from magazines/books

8. On a scale of 1 to 5 (with 1 being highest and 5 being lowest), please rate your interest level in purchasing the following software products:

___ Utility ___ GEOS-related
___ Games ___ Productivity
___ Music ___ Educational

9. Do you plan to upgrade to another computer system in the near future?

___ Yes ___ No

If Yes, which one, and within what time frame? (check computer and time frame)

___MS-DOS ___Amiga
___Mac ___Other (specify)
_____

___ 6 mo. ___ 12 mo. ___ 18mo.

10. Which peripherals do you currently use with your system? (please check all that apply)

___ Mouse ___ 5¼" disk drive
___ 1581 ___ Printer
___ Joystick ___ Modem ►

___ REU
___ Hard drive
___ Digitizer
___ Voice synthesizer
___ RAMDrive/Link
___ Handyscanner
___ Utility cartridge

11. Your next hardware purchase for your system will be:

___ 1541 drive
___ 1571 drive
___ 1581 drive
___ Mouse
___ REU
___ Printer
___ Power supply
___ Hard drive
___ RAMLink/Drive
___ Monitor
___ Modem
___ Utility cartridge
___ Laser printer

12. How much time per week do you spend using your Commodore?

___1–5 hours ___ 5–10 ___Over 10

13. What is your primary use of your Commodore?

___ Home finance (budgeting, checkbook management, etc.)
___ Games
___ Productivity (word processing, database management)
___ Programming/Utilities
___ Telecommunications
___ Business applications
___ Desktop Publishing
___ Education (home or school)
___ Hobby
___ Other: _____

14. Please rate your interest level in the following topics by indicating whether *RUN* should increase or decrease its coverage:

	Circle one	
Programming	more	less
GEOS	more	less
Telecommunications	more	less
C-128	more	less
Utilities	more	less
Business	more	less
Games	more	less
New products	more	less
Applications	more	less
Graphics	more	less
Music/Sound	more	less
Reviews	more	less
Type-in programs	more	less

15. Which columns/articles in the magazine do you find most interesting and useful? (check all that apply)

___ RUNning Ruminations
___ Mail RUN
___ 128 Mode
___ ProTips
___ Commodore Clinic
___ Magic
___ News and New Products
___ GeoWatch
___ Software Gallery
___ Curtain Call
___ Reviews
___ Tutorials
___ General-interest articles (features)
___ Programs
___ Other (please specify)

_____

16. Do you find ReRUN disks to be useful and of interest?

___ Useful ___ Not useful
___ I'm not familiar with ReRUN

17. On a scale of 1 to 5 (with 1 being the highest and 5 being the lowest) please rate *RUN*'s effectiveness in helping you meet your computer needs. (circle one)

1 2 3 4 5

18. GIVE US YOUR ADVICE— How can the editors of *RUN* improve the magazine and help you get the most from your Commodore system? What do you like about *RUN* the most? What do you like the least? If you could change something about the magazine, what would it be? What keeps you coming back to *RUN*? Please put *any* comments, opinions, ideas or criticisms here.

Thank you! for taking the time to help us make *RUN* the best it can be.

Optional:

Sex: ___ Male ___ Female
Age: ___
Name: _____
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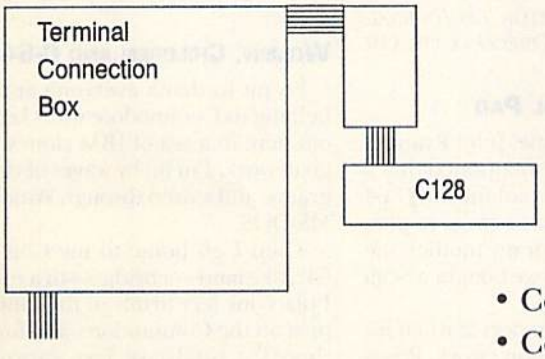

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The usual extraordinary and insightful comments, corrections and kudos from the busy desks of RUN *readers.*

COMMODORE "COMPATIBLE?"

I want to let you know just how valuable *RUN* can be to someone who wants to get the most out of their C-64 or 128. In the March/April '92 Mail RUN, Rick De Bruin of Kimberly, WI, responded to another reader who was having problems with his Star NX-1000C printer. When I read his solution (to flip off DIP switches #1 and 5 and use the Epson printer driver), a dozen bells went off in my head.

I own the same printer and, because it's Commodore "compatible," I felt no need to fool around with the DIP switches or experiment with printer drivers other than stock CBM. I assumed that a "compatible" always provided the best possible match between a Commodore computer and printer. Boy, was I wrong.

I went back and tried out all of my old programs that never quite satisfied me in their print quality. In most cases using the Epson emulation gave more features and better print. For example, I can now print color screens frozen with my Final Cartridge III.

I can't believe I had this capability just sitting there for the taking. I was ready to buy a Super Snapshot at $70 just so I could do that. Now I don't have to.

I knew this printer was great, but now it's fabulous!

—KEVIN GALAZEN
DULUTH, MN

TEN-TON TODDLER TOPPLES TOWER?

I don't believe there's a program called Tower *Toddler,* as cited in the March/April Gold Mine. I think your printer was RUNning a tad too fast. The program you refer to is named Tower *Toppler*.

—DAVID JORDAN
BUDINGEN, GERMANY

MENTAL BLOCKS REPRIEVE

I use my C-128 computer to write letters and play games nearly every day. Although I like serious stuff—utilities and applications—I feel that there is a limit to how many word processors or spreadsheets I can use. On the other hand, I find that I do enjoy solitaire, Tetris, and Shanghai-type games that are quick to learn, but long on enjoyment.

I concur with your comments about Mental Blocks (March/April Software Gallery) with one exception. The games you evaluated were poor, but my disk included a fourth program, Fits and Pieces -2D. This program is very good in my opinion; in fact I prefer it to the original Tetris. If you get a chance, try Fits and Pieces-2D.

—DAVID LONGACRE
PITMAN, NJ

NEW *geoJournal* ADDRESS

Since I continue to receive inquiries about the geoMetrix GEOS User's Group and its publication *geoJournal*, readers should know the new address:

geoMetrix
20224 S. Sprague Road
Oregon City, OR 97045-9641

—GRADY BROWN
FORMER EDITOR, *GEOJOURNAL*
OREGON CITY, OR

C-64/SEGA CONTROL PAD

In your May/June issue, John Ryan reviewed Predator 2. He mentioned that a Nintendo-type control pad for the C-64 would help make the game easier to play. When I bought Tetris for my mother, she said the same thing. So we bought a Sega Genesis control pad.

The pad works fine in port 2; when it's in port 1 the keyboard won't work. Pressing B on the pad is the same as pressing the fire button. I use the pad for all my games that use port 2. The pad does not work with GEOS. You can find the Sega Genesis control pad in any toy store for around $20.

—JOHN OBESO
PALM COAST, FL

NET NEWS: DON'T FORGET DELPHI

I read with interest your article on "the nets" and thought I should write: *You missed one*. Delphi is my network of choice. I used to belong to Q-Link. GEnie didn't work out. And CompuServe... well. Delphi is the place to be.

Delphi isn't as flashy as Q-Link, but its libraries are growing every day. The sysops and SIG managers are some of the best around. Access is easy, help is never far away, and the service sysops can answer a question almost before you finish asking.

CompuServe is a giant, but who wants to be lost in the crowd? Delphi has shopping, airline reservations, an unmatched research section and more special interest groups than a normal person would care to join. Best of all, no other network can touch the price.

Delphi has a unique pricing policy called the 20/20 Advantage Plan. $20 per month gets you access to everything Delphi offers for 20 hours. Local access from anywhere in the world—almost—and no per-minute charge for "chat."

You should give it a try.

—MARC NORRIS
DELPHI HANDLE: MARCN

WOMEN, CHILDREN AND C-64S FIRST

I want to thank everyone at *RUN* for helping us Commodore users keep afloat out here in a sea of IBM clones. When I go to work, I'm hit by waves of clone programs, and tossed through Windows and MS-DOS.

Then I go home to my Commodore 64. An island—a bridge—in a rough sea. I place my feet firmly in the sand (rug?), turn on the Commodore, and forget that there's a tidalwave fast approaching. Thanks again. Without your anchor, I surely would be drowning in the 486-50MHz whirlpool.

—DANIEL BARRERA
BOISE, ID

FOR THE TECHNICALLY INCLINED

I've been a *RUN* subscriber since you first started publishing the magazine. I've seen a few bits of misinformation over the years, but I don't think any has been quite so glaring as the two items in the May/June issue.

The first is in the sidebar by John ►

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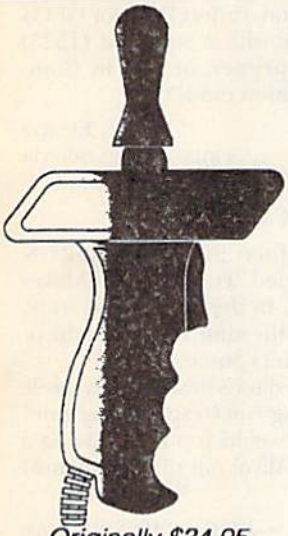

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Ryan. It is difficult to believe that anyone would knowingly print that Commodore users are "slaves bound in 1200 baud shackles." Apparently your technical staff is about three years behind the times. The Commodore 64, though it is denied by Commodore, is fully capable of performing at 2400 baud with no external attachments. There are many BBS programs that work very well at 2400 baud, including the one I use, Image. While it is true that SwiftLink by CMD is a useful product, its real use comes in allowing the 64 to perform at rates even higher than 2400.

The second glaring error, actually an omission, occurs on page 26 in the answer given to Frank Gonzales. It is stated that a SCSI drive cannot be connected to a C-64. It then goes on to state that the CMD hard drive can be connected, but fails to mention that the CMD is a SCSI drive and that larger SCSI drives can, indeed, be connected or used to replace the SCSI in the CMD.

—Fred Dart
Salem, UT

While it's true that routines have been developed that allow the Commodore to approximate *2400 baud, the speed is not true, often running a little slower than 2400 baud. That margin of error can cause transmission problems, particularly when communicating with a system running at the true 2400 baud rate.*

A further clarification: In that same article we mentioned that the SwiftLink cartridge is an RS-232 interface, allowing the C-64 to use other RS-232 devices, including printers. There are currently no drivers developed for SwiftLink to support RS-232 printers.

And finally, according to Doug Cotton from Creative Micro Designs, the CMD hard drive has a Commodore serial-to-SCSI interface, which makes it possible to connect additional SCSI drives. Replacing the SCSI drive in the CMD unit, however, is a technically demanding procedure, and not all SCSI drives are compatible. Therefore, you should contact CMD before attempting the procedure.

—Editors

A Scatological Suggestion

I have seen a lot of changes in your format since I first subscribed to *RUN* many years ago, but let me tell you one thing regarding your paper and trying out different kinds.

At least in my case, I couldn't care less if you sent my copy of *RUN* on toilet paper, just as long as you send me the information. So, I guess what I am saying is that it really does not matter to me the kind of paper you use to print your articles on. It's the information in those articles that is most important to me. I suggest you go with the least expensive route to control your overhead.

Also, I just recently subscribed to Re-RUN and I am looking forward to my first edition.

—John Marcelle
Manteca, CA

BBR and Perfect Print

The following might clarify some points made in your May/June issue:

First, Big Blue Reader for the 128 does support the REU, while the C-64 version does not. Second, Perfect Print for GEOS does not work with a standard (1525) Commodore printer, or one in Commodore emulation mode.

—John Elliot
Truro, Nova Scotia

RUN's FGM Connection

In the May/June '92 issue, Mail RUN had a letter titled "Fun Graphics Makes Forms." Then, In the July/August issue, you published the same letter with the title "Fun Graphics Success Story."

Was this an editor's mistake, or a subtle way of plugging Fun Graphics Machine?

By the way, would you mind giving a plug to C-64 Alive! out of Sacramento? Just kidding!

—Richard Cunningham
Phoenix, AZ

One reader wrote in asking, "How much did Fun Graphics Machine pay you to run that story twice?" (We can assure you they didn't pay us nearly what we're worth.)

In fact, Fun Graphics is reportedly a very good product, and we don't mind giving credit where it's due. The duplication, however, was a bona fide editorial blunder.

—Editors

User's Group Update

New Listings:

Frostburg Commodore User's Group
Frostburg Apts, B-14
Powells Lane
Frostburg, MD 21532
BBS: 301-689-8753

CUSAT
PO Box 380732
San Antonio, TX 78280

Mountain Computer Society
3898 Cheryl St.
West Valley, UT 84119
BBS 801-967-8273

Bremerton Commodore User's Group
PO Box 36
Seabeck, WA 98380-0036

Vancouver Commodore User's Group
2807 NE 99th St.
Vancouver, WA 98665

Address Changes:

South Bay Commodore User's Group
PO Box 1899
Chula Vista, CA 91912-1899

East Side Computer Club
PO Box 276
Godfrey, IL 62035-0276

Commodore User's Group Of Michiana
1137 Fisk Avenue
Niles, MI 49120

Longview Computer User's Group
PO Box 150071
Longview, TX 75615-0071

If you're new, have never been listed in RUN *or are changing locations, we want to know! All changes and additions to our User's Group Update should be sent to: User's Group Update,* RUN *Magazine, 80 Elm St., Peterborough, NH 03458.*

RUN Amok

Drat!—Three errors snuck into our Look and Load program, published in the July/August issue:

1) The checksum value for line 180 was misprinted. The correct value for that line is 11.

2) In line 220, replace the number 156 with 136, which makes the checksum value for that line 101.

3) In line 230, replace the number 150 with 153, which makes the checksum value for that line 159.

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Originally developed as a software package, then converted to a readable format, the Diagnostician has become a fantastic seller. With over 38,000 sold worldwide, Diagnostician II utilizes sophisticated cross-reference grids to locate faulty components (ICs) on all C-64 and C1541 computers (C-128/64 mode). Save money and downtime by promptly locating what chip(s) have failed. (No equipment of any kind needed.) Success rate from diagnosis-to-repair is 98%. Includes basic schematic **$6.95**
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C64 Cabinet (new)	$49.95
Interface Cables: #690 C64 to 1541/1571 disk drive	$12.95
#693 C64 to 3 pin RCA (eg. 1084)	$16.95
1541/1571 Drive Alignment	$21.95
Super Graphics by Xetec	$59.50
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KIT #3 (Part #DIA 15) for C64
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KIT #4 (Part #DIA 16) for C64
Symptoms: Control Port • Sound • Keyboard • Serial device problems
Contains: ICs #6526, 6581, 8 RAMs, Commodore Diagnostician, Fuse, Chip Puller, Basic Schematic, Utility Cartridge & special diagnostic test diskette with 9 programs
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KIT #5 (Part #DIA 17) for 1541/1571
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MAGIC

Give your C-64 double RAMdisk power, experiment with circle patterns on your C-128 screen and create text files of machine language monitor output.

By TIM WALSH

$5F1 DUAL RAMDISK 64

Even if you don't own a Commodore 1764 or other RAM expansion unit for your C-64, you still have access to a RAM drive. As its name implies, Dual RAMdisk 64 will give your unexpanded C-64 two RAMdisks, each capable of holding programs up to 8K in length, for a total of 16K!

After typing in and saving Dual RAMdisk 64, running it reveals two sets of interrupt-driven commands that remain hidden in the background until needed. SYS 49317 saves a program into the first RAMdisk, while SYS 49335 retrieves it. Similarly, SYS 49359 and SYS 49374, respectively, perform the same functions for the second RAMdisk.

Be certain to save a file to the second RAMdisk before saving one to the first. Otherwise, you might not be able to retrieve a program from the first RAMdisk.

```
Ø REM DUAL RAM DISK 64 - RICHARD PENN
                                        :REM*126
1Ø FOR T=49152 TO 49391:READ D:POKE T,D:CK
   =CK+D:NEXT                           :REM*87
2Ø IF CK<>358Ø6 THEN PRINT"ERROR IN DATA..
   .":END                               :REM*23
3Ø PRINTCHR$(147)"DUAL RAM DISK INSTALLED"
   :PRINT:PRINT"SYS 49137 - SAVE 1"
                                        :REM*1Ø3
4Ø PRINT"SYS 49335 - LOAD 1":PRINT:PRINT"S
   YS 49359 - SAVE 2"                   :REM*89
5Ø PRINT"SYS 49374 - LOAD 2":PRINT:PRINT"N
   OTE: ALWAYS SAVE TO RAM 2 FIRST!":REM*7
6Ø DATA 165,46,2Ø1,41,176,65,2Ø1,4Ø,2Ø8,6,
   165,45,2Ø1,1,176,55,165,43,133 :REM*246
7Ø DATA 251,165,44,133,252,165,45,141,252,
   3,165,46,141,253,3,169,Ø,133   :REM*141
8Ø DATA 253,169,224,133,254,16Ø,Ø,177,251,
   145,253,23Ø,253,2Ø8,2,23Ø,254  :REM*129
9Ø DATA 23Ø,251,2Ø8,2,23Ø,252,165,251,197,
   45,2Ø8,234,165,252,197,46,2Ø8   :REM*47
1ØØ DATA 228,96,76,53,164,12Ø,169,Ø,133,25
    1,169,16Ø,133,252,165,43,133   :REM*67
11Ø DATA 253,165,44,133,254,169,53,133,1,1
    6Ø,Ø,177,251,145,253,23Ø,253   :REM*39
12Ø DATA 2Ø8,2,23Ø,254,23Ø,251,2Ø8,2,23Ø,2
    52,165,253,2Ø5,25Ø,3,2Ø8,233  :REM*136
13Ø DATA 165,254,2Ø5,251,3,2Ø8,226,169,55,
    133,1,173,25Ø,3,133,45,173,251:REM*145
14Ø DATA 3,133,46,88,165,55,164,56,133,51,
    132,52,165,45,164,46,133,47    :REM*23Ø
15Ø DATA 132,48,133,49,132,5Ø,96,169,16Ø,1
    41,39,192,169,25Ø,141,27,192   :REM*37
16Ø DATA 169,251,141,32,192,76,Ø,192,169,1
    6Ø,141,82,192,169,25Ø,141,118 :REM*19Ø
17Ø DATA 192,141,134,192,169,251,141,125,1
    92,141,139,192,76,76,192,169   :REM*71
18Ø DATA 224,141,39,192,169,252,141,27,192
    ,169,253,76,177,192,169,224    :REM*197
19Ø DATA 141,82,192,169,252,141,118,192,14
    1,134,192,169,253,76,198,192   :REM*253
```

—RICHARD PENN, MONTREAL, QUEBEC

$5F2 CIRCLE FUN 128

Among the C-128's Basic 7.0 graphics commands, Circle is one of the most powerful. Circle Fun 128 is a short program that creates four entertaining, eye-catching displays. Try experimenting with different values in the Circle commands in this program and watch the results.

```
Ø REM CIRCLE FUN 128 - KEN HOKE    :REM*191
1Ø COLOR4,1:COLORØ,1:GRAPHIC1,1:COLOR1,2
                                    :REM*67
2Ø X=8Ø:Y=51:FORS=3 TO 5            :REM*17
3Ø RT=Ø:RD=5Ø:RS=97:RE=5Ø            :REM*1
4Ø FORZ=1 TO 13                     :REM*255
5Ø CIRCLE1,X,Y,RD,RD,,,RT,36Ø/S     :REM*1Ø2
6Ø RT=RT+9:RD=RD-3.7                :REM*217
7Ø NEXTZ                            :REM*125
8Ø IF S=3 THEN Y=Y+RS                :REM*63
9Ø IFS=4THENY=Y-97:X=X+(RE*3)        :REM*49
1ØØ IFS=5THENY=Y+RS                  :REM*35
11Ø NEXTS                           :REM*151
12Ø RT=Ø:FOR Z=1 TO 9:CIRCLE1,23Ø,148,2Ø,R
    E,,,RT,1:RT=RT+2Ø:NEXT          :REM*169
```

—KENNETH HOKE, LOUISVILLE, KY

$5F3 MONITOR FILE MAKER 128

Monitor File Maker 128 is an unusual utility that programmers should find helpful. The program runs from within Basic on the C-128, jumps to the built-in machine language monitor, creates a file, then allows you to exit back to Basic. The contents of the file are a word processor-compatible file of the machine language monitor's output.

After running it, enter a filename at the first prompt. Next, enter commands from within the machine language monitor to disassemble or examine files, then press the HOME key and press RETURN. The disk file is closed and you're now ready to load the file into your word processor.

```
Ø REM C-128 MONITOR OUTPUT FILE MAKER - RA
  NDY WINCHESTER                    :REM*239
1Ø INPUT"FILENAME";F$                :REM*45
2Ø PRINTCHR$(147)                   :REM*226
3Ø PRINT"{HOME}G FA16F"             :REM*246
4Ø PRINT"OPEN 1,"PEEK(186)",2,"+CHR$(34)+F
   $+",S,W"+CHR$(34)+":CMD1:MONITOR"
                                    :REM*23
5Ø POKE 2Ø8,3:POKE 842,145:POKE 843,19:POK
   E 844,17                         :REM*21
```

—RANDY WINCHESTER, CAMBRIDGE, MA ■

News and New Products

Special sneak preview: A new fantasy role-playing game for the 64 that could be the best yet. Plus, a Western clip-art disk and news from CBM.

By JANICE CROTTY

A Promising New Role-Playing Game to Be Released This Fall

LAKEWOOD, CO—A few months ago, two men calling themselves Mad Man Software flew out to show us a piece of software they were putting together with some of their college buddies. Here we go, I thought, another AD&D rip-off. The eternal skeptic, my expectations were not high.

In Messiah III, your quest is revealed as you explore the desert planet, Radix.

Fortunately, I was wrong. These guys are professional engineers and, as it turns out, one of the "college buddies" is a National Dungeon Master. They've spent five-and-a-half years planning their massive fantasy role-playing game, **Messiah III: Nemesis**, complete with its own DOS. What they showed us was quite impressive.

The final version will not be available for review until later this fall, but if Messiah III lives up to its aspirations, this game could rival the Ultima series in scope and overall quality.

Be forewarned: M3 is not intended for the novice FRP gamer. Gene Barker, the chief Mad Man, describes M3 as "quite difficult, designed for the high school intellectual and up." Accordingly, the game will sport an "R" self-rating for violence, nudity and adult situations.

As the name suggests, the series starts midstream. Messiah III is the first release of a 5-part series that takes place on a harsh desert world called Radix. Unlike other games, you must explore Radix and discover your destiny as you go along. The levels are set up in an intricate web, so you're free to make your way about Radix, exploring more than 300 flicker-free color screens and 50 maps.

The massive game (six disk sides) claims the fastest access times and fewest disk swaps of any Commodore FRP to date. On a stock C-64 with a 1541 drive, says Barker, your *maximum* disk access will be only 12 seconds, with most access times under *two* seconds. With a RAMLink, RAMDrive or CMD Hard Drive, disk access becomes instantaneous. Mad Man has been working with CMD to ensure that the game is fully compatible with their products, including Jiffy DOS. What's more, a custom operating system, Mad DOS, stores graphics in a buffer, so there's less need for disk access. Even so, the game promises 200–400 hours of playing time!

Still, I was most impressed by their novel approach to combat. Your character might slip or fumble during a fight, particularly if he or she's a novice. More unique is the AMI—Artificial Monster Intelligence—that endows each monster with a special style to exclude formula combat. Some run away, others have magic, and so on. That challenge, explains Barker, makes sure that combat won't get easier or boring as you and your character gain experience.

Whether or not M3 succeeds will depend on how faithfully they can follow through with the game's promise. We anxiously await the final version, which, again, is planned for later this fall.

For more information, you can contact Mad Man Software at 7610 West 5th Avenue, Suite 200, Lakewood, CO 80226.

Western Theme Clip Art Disk

DEER PARK, WA—In the past year, virtually every clip art collection to cross my desk has featured cute cartoon characters: the Flintstones, the Simpsons, the Turtles. They may be adorable, and for now they may be popular, but how often can you send out "Cowabunga, Dude!" birthday invitations?

Horse Feathers Graphics of Deer Park, Washington, has put together a versatile and entertaining clip art collection for Print Shop. Western Heritage captures genuine Western images with its 11 fonts (one of them an authentic Indian symbol font), 90 graphics and 42 borders. Detailed instructions help you recreate original wanted posters, and many examples are included with the kit. If you're planning a barbecue, riding event, rodeo, hay ride or horseshoe tournament, contact Horse Feathers Graphics, North 27310 Short Road, Deer Park, WA 99006.

The Western Heritage clip art collection features 140 designs and 11 fonts.

Commodore Names New VP of Consumer Sales

WEST CHESTER, PA—Commodore recently named David Pleasance vice president of consumer sales in the U.S. He will be responsible for marketing the company's products in the U.S., including our beloved 8-bit machines and their peripherals.

This could mean great things for 8-bit fans, as Pleasance comes from Commodore International's European affiliates, where 8-bit machines are still big business. An enthusiastic supporter of the C-64, Pleasance could prove to be our greatest advocate in years. ■

geoDrawing

By LARRY McCOY

Have you ever wished that you could include a personal drawing in your GEOS documents? I'll show you a simple way to create artwork using geoPaint, and you don't have to be an artist. When you combine my method with a little patience, you will be amazed with the results.

Here are my seven steps to success:

1. Find a snapshot or a picture from a magazine that you can trace using tracing paper. I chose a photo of my cat Rosebud for this demonstration.

2. Tape the picture to a flat surface and lay tracing paper over it. Tape the tracing paper only at the top so you can lift it to check details.

3. Trace the outline first, and then the interior divisions.

4. Trace details last, including only those details that are most telling. As you can see in figure 1, I traced major lines to indicate the face, legs and tail and added only those stripes that stood out the most. You only need to trace essential details; your further work and the viewer's mind will supply the rest.

5. Copy your tracing onto overhead transparency film using a copier. An office-supply or copy shop can do this for you. If your tracing exceeds the geoPaint screen area, reduce it during the copy process.

6. Load geoPaint and tape the transparency to the appropriate position on

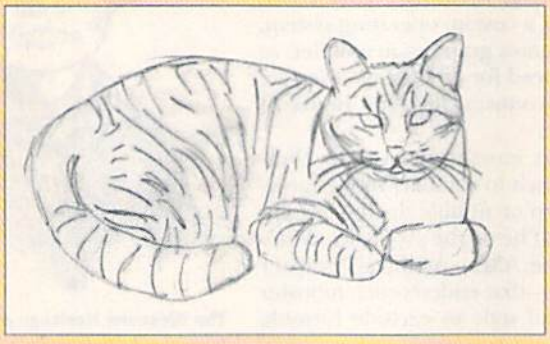


Fig. 1. The initial tracing of Rosebud done directly from the photo onto tracing paper.

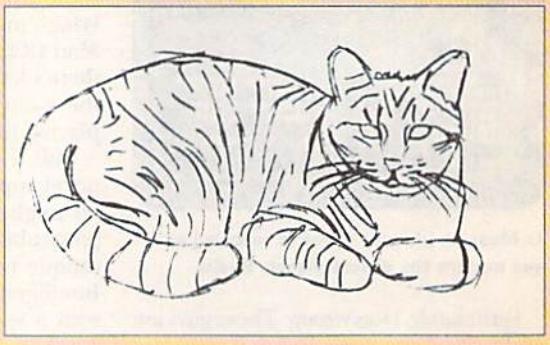


Fig. 2. Next, the tracing is photocopied onto a transparency sheet. (I find it easier to draw on the tracing paper first, rather than directly onto the transparency.)

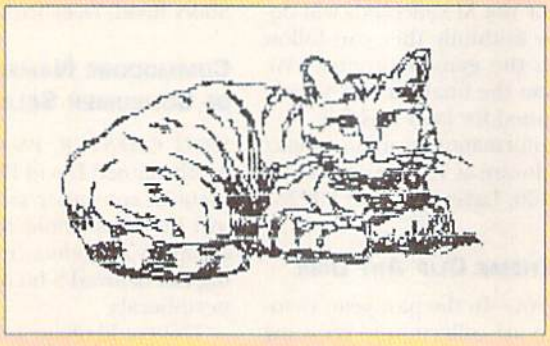


Fig. 3. My first tracing onto the computer. The primary sketch is usually rough and needs refinement.

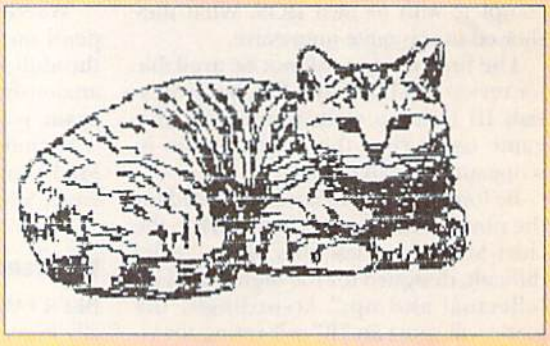
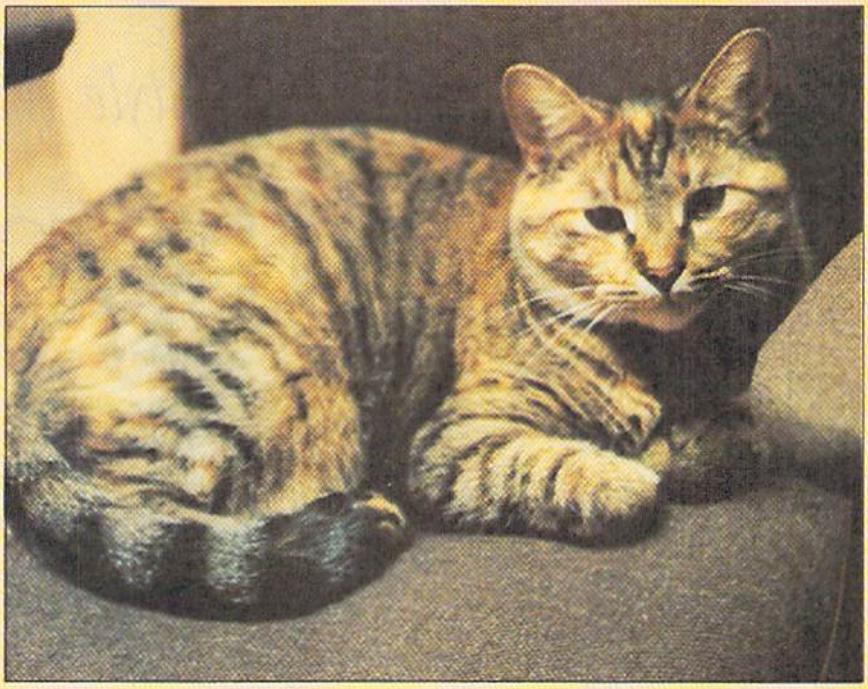


Fig. 4. The drawing has been cleaned up and corrected. After some careful comparison between the drawing and the original, I noted that the ears, eyes, mouth, tail and shadows needed work. (Rosebud agreed.)

Create your own artwork for GEOS documents with these seven easy steps.



your computer screen. Using the pencil tool, trace the lines. Don't rush, and don't worry if you make a mistake.

7. Refine your drawing with pixel edit mode. I typically put the drawing away for a few days after this step so I can make the final refinements with an objective eye. I often ask a friend to critique it as well. (Of course, Rosebud offered her "unbiased" opinion.)

Make the final changes, and *voilà!* Instant art.

Once your drawing is in geoPaint you can modify it easily and save several different versions. My efforts (Figs. 5–8) show that there are many ways to finish a drawing. Experiment with all of the geoPaint tools, brush shapes and patterns to create your own unique effects. Your GEOS documents will never be the same! ■

Rosebud, and Larry McCoy, live in Hoffman Estates, Illinois.

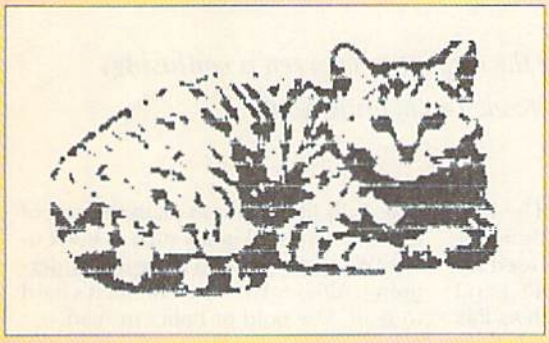


Fig. 5. A simple cut-and-paste using the smoothing option from the Paste dialogue box. This drops the detail and adds contrast to the image. Smooth your pictures when you need them to be crisp (a logo, for example).

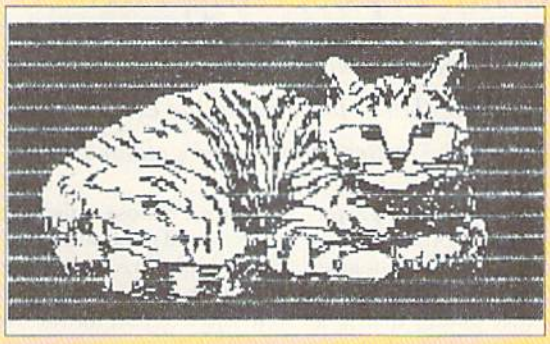


Fig. 6. This effect was accomplished by drawing a box with the line tool to create a rectangle around the image, then filling it with the faucet tool. This "pop-out" effect works well in geoWrite and geoPublish documents.

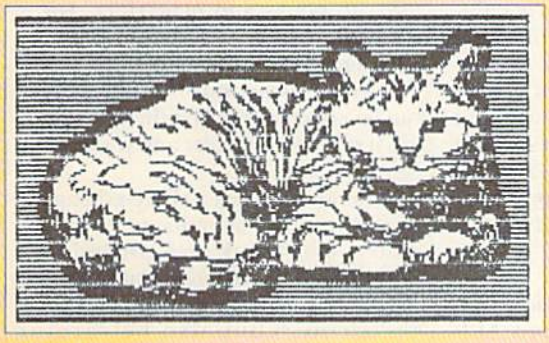


Fig. 7. I created this effect by outlining the cat with the brush tool and filling the outer rectangle with the horizontal line pattern. Since I knew the cat was enclosed with the bold brush line, I could use the faucet tool and fill the rectangle in one step.

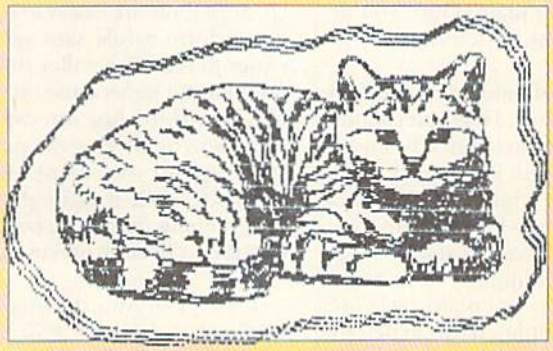


Fig. 8. The three-dotted brush creates a whimsical line around the cat. (Rosebud was so thrilled by this one she ran to the kitchen and demanded sardines for supper.)

Writing In Style With geoFonts

By GERRY DESCOTEAUX

Before laying out a single page, before importing any graphics, sometimes even before importing any text, a desktop publisher has to pick fonts. Selecting a typeface (or typefaces) is the first, most basic decision you have to make. A wise font choice will be readable, eye-pleasing, and will impart a sense of style to your publication. With GEOS and either geoPaint or geoPublish, you can use fonts to make your documents look more exciting and professional, tailoring key page elements with different sizes and styles of type.

The selection process will take some trial and error, so you'd better be prepared. First, load your work disk with the files you'll need for your project: applications, printer drivers, the deskTop icon and your choice of fonts. If you own a RAM expansion device, you'll be able to work faster by copying your work disk onto the RAMdisk. Remember to save your data to floppy disks often! Unless your RAM device has a battery back-up (only in RAMLink, RAMDrive and The

Professional Typesetting Advice

Consistently following a few well-thought-out rules can make the difference between a confusing, cluttered page and one that is pleasing to the eye and easy to read. In choosing your typefaces and typestyles, "moderation" is the golden rule.

1. Consistency is essential in giving your document a professional appearance. If you create a regular publication, such as a newsletter or bulletin, make yourself a "style guide" that lists your font, point-size and style selections for titles, subtitles, text, and so on. For example, you could make titles 36-point Peignot bold; headlines, 24-pt. Square bold; captions, 9-pt. Peignot italic; and text, 12-pt. Times plain. Once you decide on your styles, stick to them!

2. Typesetting should guide the reader through the page. Headlines should stand out more than subheads, and so on. When you think you have it right, set it aside for a while and then look again. Do your eyes know where to go first? Is the page easy to read? A type style can lend a feeling to your message (literary elegance or "plain facts" reporting, for example); try to match the style to your message.

3. Overusing typefaces and type styles is the novice's greatest pitfall. Though you're tempted by a wide selection of typefaces, choose only a few. The best professional publications use only two or three. Typically, one *serif* font is used for text (such as this one, Baskerville) and one *sans serif* font for titles (such as this one, Helvetica). Serifs are the little lines that extend off the extremities of some letters (notice on the T, P and H, for instance); sans serif ("without serifs") fonts do not have these lines (compare T, P, H). Serif fonts are easier to read in paragraph form, while sans serif fonts are easier to read in smaller doses. Choose two fonts for general use on your page—maybe a third just for captions—and vary them by altering the point size and style. Avoid overusing novelty typefaces; they might work great for grabbing attention, but will quickly lose their effect by overuse.

4. Don't overdo it using type styles. Use *italics*, **bold**, outline and ALL CAPS styles sparingly, to emphasize only the most important page elements. Capitalized and italicized text are more difficult to read, especially in blocks, and should therefore be used only occasionally for emphasis or, in the case of italics, for special items such as book titles. We think you should avoid underlining. Although it's used often, it's hard to read. Use bold or italics instead.

5. "Justified" type (with even line lengths, straight left and right margins) is easier to read and packs more words into your available space. It's used most often in books and magazines. For a more informal, friendly look, use "flush left, ragged right" (straight left margin, uneven right margin). Centered text can be effective, but is difficult to read; use it only occasionally and for titles.

6. Remember that a cluttered page is hard to read. Pay attention to the "white space"—the blank area around and near the text. Avoid cramming in too much text and creating a dull, uninviting space the reader has to plough through. But also be careful to avoid a spacy, stretched-out look. Finding the balance is one of the keys to excellent page design.

—*The* RUN *Editors*

Use different fonts and font styles to give your geoPaint and geoPublish documents a professional edge.

SILVER SCREEN!
This is Wilson Actually a nice looking text font.
Outline Mode works well...
doesn't it?
Print your own funny money with this engraving type.
this is neon
In this font the numbers produce their oriental equivalent:
一 二 三 四 五 六 七 八 九 十
Now in Arabic: ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ٠

Quick Brown Box), anything you have in RAM will be lost if (and when) the power goes off.

Unlimited Options

As in all GEOS-related processes, printing is done in Graphics mode, not Text mode. Therefore, you can use fonts of almost any shape, size and style. Choose the Old-English Dwinelle font for formal invitations; space-styled Cory to advertise the local planetarium; or the traditional Vatican font to lead off your church bulletin. Use a special font for titles and headlines, and a simple font for text. To experiment with the fonts on your work disk, click on the font menu at the top of your deskTop, geoWrite or geoPaint page.

Font size options are limited in geoPaint, though some fonts offer more flexibility than others. For example, Roma offers 9-, 12-, 18- or 24-point sizes, while the Commodore NLQ font comes only in 10 point. GeoPublish gives you maximum control over font size by letting you scale the font from 1 point to 199 points high. Large text, however, often has that jagged, computerized look. You can use the Smooth option to minimize the effect. Or, you can print your document to geoPaint using the Paint Pages printer driver.

When you print with the Paint Pages printer driver, your geoPublish document prints itself to a new geoPaint file, which is automatically saved to disk with the name Page 1. Load the new document into geoPaint and clean up the jagged edges using Pixel Edit mode. For best results, smooth the font in geoPublish, then print it into geoPaint and clean up the edges.

The options available on the style menu (to the right of the font menu) can really add flash to your page. Use the bold or outlined styles to draw the reader's attention to key page elements. Italics will distinguish special text on the page, but will make it more difficult to read. On a resume, for example, you might put past job titles in 14-point bold, your dates of employment in 12-point bold italics and the job descriptions in 12-point plain. The outline style is powerful—adding a graphic quality to your page if done properly. But be careful: This style can be overwhelming, and is inappropriate for formal documents. Subscript and superscript can be used for footnotes or mathematical symbols (for example, *Aliens*[3]).

A combination of styles can provide you with multiple design options. For example, I use Piegnot 18 point throughout my music magazine. For the cover title, I created a fat oval-shaped area with the geoPublish filled circle tool. Inside of it I placed the title "The Back Page" in 18-point Piegnot, bold outlined. The resulting graphic became the magazine's logo. I use it everywhere: on letterheads, advertisements, even as a page footer.

Font Sources

The Geos Power Pak disks have several fonts created by professional designer Susan Lamb. Likewise, the various FontPak disks from geoWorks offer a nice assortment. On the geoPublish disk you'll find a number of fonts specifically designed to be used for laser printing. Also check out the Font Libraries in the GEOS Arena of the QuantumLink Software Showcase. Many of these fonts were created by other users who wished for more than the half-dozen fonts packaged with the GEOS system.

If you'd like to try your hand at designing a custom font, get the geoFont Editor, also available on Q-Link. You can customize an existing font or start from scratch and design your own.

My best advice to you is: Experiment! Try different font combinations, then look at their various styles. Figure out which combinations work best for the projects you do, and make notes about what you like.

(For more information about desktop publishing on the Commodore, see "Read All About It" in *RUN*'s July/August 1991 issue.)

The power to unleash creativity has never been more accessible to Commodore enthusiasts than it has since the onslaught of the GEOS generation of productivity software. If you can think it, you can produce it. ■

Gerry Descoteaux lives in New Hampshire. He desktop publishes a regional music newsletter, The Back Page, *using GEOS.*

Hotkey

Here's a behind-the-scenes programming utility that lets you easily call pop-up accessories from your Basic programs.

By RICHARD PENN

Imagine you're using a word processor and you need to make a calculation, so you click on an on-screen calculator, do the figuring, and resume working. Then the phone rings, and as you're talking, you click on a calendar to confirm an appointment.

If you think creating pop-up accessories such as these is possible only for an expert programmer using machine language, think again: You can easily create them in Basic with Hotkey.

The Listings

Type in Listing 1, a Basic hex loader, using *RUN*'s Checksum on page 47 to catch errors, and save it to disk. Then run it once to create the file Hotkey.ML. This is the Hotkey program. Next, type in and save Listing 2, also a Basic hex loader. Run it once to create the file Calc.ML, the sprite data used by the demo program. Finally, type in Listing 3, the demo program, and save it to the same disk as Hotkey.ML and Calc.ML.

To see Hotkey in action, load and run the demo as you would any Basic program. The demo calculator uses the same keys as a pocket calculator, except to clear the display you press HOME.

The Hot Key Setup

The utility works by setting up the F1 key as a "hot key" within your Basic programs. Pressing F1 puts the Basic program on hold and executes the code for the pop-up desk accessory (such as my calculator). Pressing F1 again returns you to the main program as if you had never left. Think of it as a powerful Gosub key that jumps to a subroutine with its own screen, VIC-II chip and variables.

To use Hotkey, add line 60 of the demo to the beginning of your Basic program. Then you will need to add the two commands SYS 49752,LINE and SYS 49877 to your Basic program.

The first enables Hotkey and points to the first line of the desk accessory subroutine (that is, the line that pressing F1 jumps the program to). Place this command near the start of your program.

The second command disables Hotkey. This is an optional command, to be used at your discretion.

Programming Desk Accessories

From the top down, a Basic program with Hotkey desk accessories must be organized as follows: First comes the main application program, along with any subroutines, followed by the desk accessory code, written as a separate program. At the beginning of the main program is the line to load the Hotkey.ML file into memory (line 60 of the demo), followed by the command SYS 49752,LINE (as explained above). The main program should have access to the desk accessory code only through the hot key.

When F1 is pressed, all important information about the main program, such as Basic pointers, variables, screen and color memory, and the VIC-II chip, are saved. Then Basic jumps to the chosen subroutine and executes it. This subroutine has its own variables (2559 bytes stored at memory locations 50689–53247), which are cleared each time you press F1. The display, however, is not cleared, so pop-up tools can be printed over the current screen for a window effect. The only quirk is that the cursor is positioned one column to the right of the "home" corner.

No screen or sprite changes made by a subroutine called by Hotkey are permanent. The utility remembers where you were, and pressing F1 restores the original program. The only exception is the SID chip, which cannot be peeked, and therefore cannot be saved.

If you want to have several desk accessories, include a menu at the beginning of the hot key subroutine so users can choose the one they want.

When programming pop-up accessories, it's best to write them separately, and merge them with the main program once they're debugged. This is because only the main set of variables is available to the Basic editor. If you press RUN/STOP while a hot key subroutine is running and then type PRINT A, the value of A in the main program, and not the subroutine, will be returned.

Even if you don't want to program your own accessories, use the calculator from the demo in your own programs by including lines 50–90 and 1000–1390.

New Look and Feel

Hotkey gives Basic a new look and feel. Never before could Basic programs be so user-friendly, nor did the programmer have so much power at his fingertips. The click-on accessory possibilities are limited only by your programming prowess, and your imagination. ■

Richard Penn has been a prolific contributor to RUN*'s Magic column. He lives in Montreal, Quebec.*

Listing 1. Hotkey hex loader program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```
Ø REM THIS CREATES (AND SHOULD
  NOT BE CALLED) HOTKEY.ML
                        :REM*97
  5 OPEN 8,8,8,"HOTKEY.ML,P,W"
                        :REM*37
  6 CT=Ø:PRINT"{SHFT CLR}":REM*56
 1Ø READ A$:IF A$="-1" THEN CLOS
    E8:PRINT:PRINT"ALL DONE!":EN
    D                   :REM*129 ►
```

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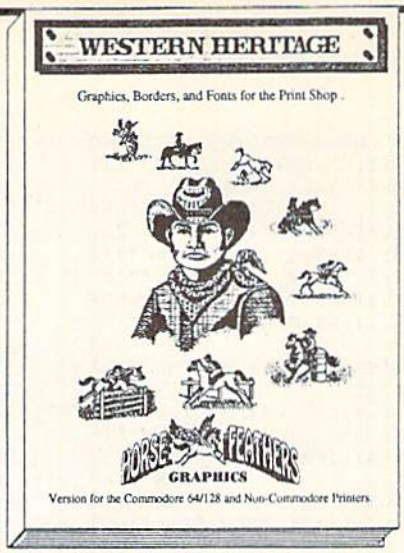
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```
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1      :REM*141
15 IF LEN(A$)<62 THEN 55
                        :REM*254
2Ø B$=MID$(A$,1,2Ø)+MID$(A$,22,
   2Ø)+MID$(A$,43,2Ø)   :REM*242
25 FOR I=1 TO 3Ø        :REM*181
3Ø C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                        :REM*2Ø9
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55            :REM*85
4Ø L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55            :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                        :REM*67
5Ø NEXT:GOTO 1Ø         :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 7Ø                 :REM*184
6Ø IF LEN(A$)<42 THEN B$=LEFT$(
   A$,2Ø)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 7Ø           :REM*176
65 B$=LEFT$(A$,2Ø)+MID$(A$,22,2
   Ø)+RIGHT$(A$,LEN(A$)-42)
                        :REM*14Ø
7Ø FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                        :REM*14Ø
8Ø H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55            :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55            :REM*84
9Ø BY=H*16+L:PRINT#8,CHR$(BY);
                        :REM*148
95 NEXT:GOTO 1Ø         :REM*16Ø
1ØØ REM HEX DATA FOR HOTKEY.ML
                        :REM*83
1Ø1 DATA ØØCØA2Ø2B5ØØ9DFDA2E8*E
    ØFBDØF6A9FF85FBA9ØØ*85FCA9F
    685FDA9A385FE       :REM*226
1Ø2 DATA AØØØB1FB91FDE6FDDØØ2*E
    6FEE6FBDØØ2E6FCA5FB*C91ØDØE
    AA5FCC9Ø3DØE4       :REM*13
1Ø3 DATA A9ØØ85FBA9Ø485FCA9Ø7*8
    5FDA9A685FEB1FB91FD*E6FDDØØ
    2E6FEE6FBDØØ2       :REM*155
1Ø4 DATA E6FCA5FBC9E8DØEAA5FC*C
    9Ø7DØE4A9ØØ85FBA9D8*85FCA9E
    F85FDA9A985FE       :REM*129
1Ø5 DATA B1FB91FDE6FDDØØ2E6FE*E
    6FBDØØ2E6FCA5FBC9E8*DØEAA5F
    CC9DBDØE4A2ØØ       :REM*75
1Ø6 DATA BDØØDØ9DD7ADE8EØ2FDØ*F
    5BA8EØ6AEA93685Ø1A2*Ø2BDØØA
    Ø95ØØE8EØD9DØ       :REM*1Ø4
1Ø7 DATA F6A2F3BDØØAØ95ØØE8EØ*F
    BDØF6A9EB85FBA9AØ85*FCA9FF8
    5FDA9ØØ85FEB1       :REM*64
1Ø8 DATA FB91FDE6FDDØØ2E6FEE6*F
    BDØØ2E6FCA5FBC96DDØ*EAA5FCC
    9A2DØE4AEFCA2       :REM*159
1Ø9 DATA A93785Ø19AA9F68D24Ø3*A
    9C18D25Ø3A9138D77Ø2*A9ØD8D7
    8Ø2A9Ø285C6A9       :REM*51
11Ø DATA 1A8DØ2Ø3A9C28DØ3Ø3A2*1
    AB5D8Ø98Ø95D8CADØF7*A2Ø8BDF
    7Ø79DEAC5CADØ       :REM*9
111 DATA F74C31EAA9368SØ1A2Ø2*B
    DFDA295ØØE8EØFBDØF6*A9FF85F
    BA9ØØ85FCA9F6       :REM*1Ø6
112 DATA 85FDA9A385FEAØØØB1FD*9
    1FBE6FDDØØ2E6FEE6FB*DØØ2E6F
    CA5FBC91ØDØEA       :REM*14
113 DATA A5FCC9Ø3DØE4A9ØØ85FB*A
    9Ø485FCA9Ø785FDA9A6*85FEB1F
    D91FBE6FDDØØ2       :REM*154
114 DATA E6FEE6FBDØØ2E6FCA5FB*C
    9E8DØEAA5FCC9Ø7DØE4*A9ØØ85F
    BA9D885FCA9EF       :REM*6
115 DATA 85FDA9A985FEB1FD91FB*E
    6FDDØØ2E6FEE6FBDØØ2*E6FCA5F
    BC9E8DØEAA5FC       :REM*2Ø
116 DATA C9DBDØE4A2ØØBDD7AD9D*Ø
    ØDØE8EØ2FDØF5AEØ6AE*A93785Ø
    19A4CF3C5EAEA       :REM*53
117 DATA EAA9838DØ2Ø3A9A48DØ3*Ø
    3A9578D24Ø3A9F18D25*Ø34C31E
    AA9578D24Ø3A9       :REM*188
118 DATA F18D25Ø3Ø8A9ØØ2Ø9ØFF*2
    82Ø6ØA6ADEBC28515AD*ECC2851
    42ØA6A84CAEA7       :REM*48
119 DATA 788DE9C28EEAC2A9838D*Ø
    2Ø3A9A48DØ3Ø3A9578D*24Ø3A9F
    18D25Ø3A9ØØ8D       :REM*157
12Ø DATA E7C2A9368SØ1A22DBDFD*A
    295ØØE8EØ39DØF6A937*85Ø1ADE
    9C2AEEAC2584C       :REM*64
121 DATA 83A4A9EE85FBA9C285FC*A
    9ØØ85FDA9AØ85FEAØØØ*B1FB91F
    DE6FDDØØ2E6FE       :REM*1Ø2
122 DATA E6FBDØØ2E6FCA5FDC9FD*D
    ØEAA5FEC9A2DØE42ØFD*AE2Ø8AA
    D2ØF7B7A5148D       :REM*165
123 DATA ECC2A5158DEBC2A9ØØ8D*E
    7C278A9AB8D14Ø3A9C2*8D15Ø35
    86ØA5C5CDE8C2       :REM*125
124 DATA FØ2Ø8DE8C2C94ØFØ19C9*Ø
    4DØ15AD8DØ2DØ1ØADE7*C249Ø28
    DE7C2FØØ34CØØ      :REM*19Ø
125 DATA CØ4C2EC14C31EA78A931*8
    D14Ø3A9EA8D15Ø3AØØØ*8DE7C25
    86ØØØØ44ØØØ3       :REM*126
126 DATA EAFF94FFØØAAB191B322*2
    2ØØØ4CØØFFØØ4ØØØ*Ø2ØØ7FC
    B1916ØØØA76A3       :REM*242
127 DATA Ø4EAØBØØØØØ76A3B3BD*5
    1ØØØØØØØØ1Ø8Ø1C6Ø1*C6Ø1C6F
    FCFØØØØFFCFFA       :REM*53
128 DATA FFFAØØ4FØC5C4ED317Ø3*Ø
    2534124181E18FFØB0Ø*ØØØØ1E1
    8ØØ34CB7ØØØØ       :REM*225
129 DATA 6917621700000000000A*7
    6A319ØØØØØØØØ9ØCB7A*ØØØØØ7
    6ØØ8ØA3E67ADØ       :REM*87
13Ø DATA Ø2E67BADØ6Ø2C93ABØØA*C
    92ØFØEF38E93Ø38E9DØ*6Ø8Ø4FC
    752584ØFFØØØØ       :REM*232
131 DATA 55FFØØØØØØØØ3ØØØ8Ø*Ø
    ØØØØ246C55ØØØØØØØ*ØØØØØØØ
    ØØØØØD617ØØØØ      :REM*35
132 DATA 3CØ3ØØØØØØ6ØØ6ØØ8FA*9
    FØØØØØØØØØA0Ø1Ø8Ø4*ØØØØ8Ø
    CØØØ4ØØØ22ØØØ      :REM*2Ø9
133 DATA ØØØØ4ØØØØ27ØØ85ØØFF*Ø
    ØØØFFFFØØØØFFFFØØØØ*FFFFØØØ
    ØFFFFØØ2Ø2Ø34       :REM*135
134 DATA 39373535ØØ3Ø3Ø3Ø3ØFF*Ø
    ØØØFFFFØØØØFFFFØØØØ*FFFFØØØ
    ØFFFFØØØØFFFF       :REM*16
135 DATA ØØØØFFFFØØØØFFFFØØØØ*F
    FFFØØØØFFFFØØØØFFFF*ØØØØFFF
    FØØØØFFFFØØØØ       :REM*79
136 DATA FFFFØØØØFFFFØØØØFFFF*Ø
    ØØØFFFFØØØØFFFFØØØØ*FFFFØØØ
    ØFFFFØØØØFFFF       :REM*1Ø3
137 DATA ØØØØFFFFØØØØFFFFØØØØ*F
    FFFØØØØFFFFØØØØFFFF*ØØØØFFF
    FØØØØFFFFØØØØ       :REM*77
138 DATA FFFFØØØØFFFFØØØØFFFF*Ø
    ØØØFFFFØØØØFFFFØØØØ*FFFFØØØ
    ØFFFFØØØØFFFF       :REM*1Ø1
139 DATA ØØØØFFFFØØØØFFFFØØØØ*F
    FFFØØØØFFFFØØØØFFFF*ØØØØFFF
    FØØØØFF7DEAØØ       :REM*1Ø1
14Ø DATA FFØØ22ØEBC817DEA7DEA*Ø
    Ø17C8ØEBC8185BDØCBD*BAØEØFF
    F7DEAØ2Ø72Ø21       :REM*98
141 DATA DAE4ØDØ7FF7D7885Ø1ØØ*2
    2CFE5ØØØA14E164A585*A481F41
    7818ØØØØØØØ1        :REM*226
142 DATA 866ØØØØØØØØE01ØC74A7*7
    9A69C2C9E3532303935*ØØ35ØØØ
    ØØØØØØØØØ2E4F       :REM*222
143 DATA 424A222C382C31ØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØØØ       :REM*3Ø
144 DATA ØØØØØØØØØØØØØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØ         :REM*36
145 DATA ØØØØØØØØØØØØØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØØ        :REM*39
146 DATA ØØØØØØØØØØØØØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØ8ØØAØØØØEF6       :REM*4
147 DATA Ø4ØAØØØ21ØØØØØ48EBØØ*Ø
    ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØØØ       :REM*8
148 DATA ØØA9578D24Ø3A9F18D25*Ø
    3A9ØØ8515A964851420*A6A84CA
    EA7ØØØØØØØØØØ      :REM*129
149 DATA ØØØØØØØØØØØØØØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØØ        :REM*27
15Ø DATA ØØØØØØØØØØØØØØØØØØØ*Ø
    ØØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
    ØØØØØØØØØØØØ       :REM*26
151 DATA 8BE383A47CA51AA7E4A7*8
    6AECBØØØØBØDA56ØØ9F*Ø4746B8
    E53A2Ø8BDEAC5       :REM*189
152 DATA 9DF7Ø7CADØF74CDFC1
                        :REM*123
153 DATA -1             :REM*11
```

Listing 2. Calculator hex loader program. Also available on the September/October ReRUN disk.

```
Ø REM THIS LIST 1 CREATES (AND
  SHOULD NOT BE CALLED) CALC.ML
                        :REM*77
5 OPEN 8,8,8,"CALC.ML,P,W"
                        :REM*75
6 CT=Ø:PRINT"{SHFT CLR}":REM*56
1Ø READ A$:IF A$="-1" THEN CLOS
   E8:PRINT:PRINT"ALL DONE!":EN
   D                    :REM*129
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1      :REM*141
15 IF LEN(A$)<62 THEN 55
                        :REM*254
2Ø B$=MID$(A$,1,2Ø)+MID$(A$,22,
   2Ø)+MID$(A$,43,2Ø)   :REM*242
25 FOR I=1 TO 3Ø        :REM*181
3Ø C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                        :REM*2Ø9
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55            :REM*85
4Ø L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55            :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                        :REM*67
5Ø NEXT:GOTO 1Ø         :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
```

```
   O 7Ø                    :REM*184
6Ø IF LEN(A$)<42 THEN B$=LEFT$(
   A$,2Ø)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 7Ø              :REM*176
65 B$=LEFT$(A$,2Ø)+MID$(A$,22,2
   Ø)+RIGHT$(A$,LEN(A$)-42)
                           :REM*14Ø
7Ø FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                           :REM*14Ø
8Ø H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55               :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55               :REM*84
9Ø BY=H*16+L:PRINT#8,CHR$(BY);
                           :REM*148
95 NEXT:GOTO 1Ø            :REM*16Ø
1ØØ REM HEX DATA FOR CALC.ML
                           :REM*226
1Ø1 DATA ØØ3E5E5EBØ5E5EBØ5E5E*B
   ØBEBEBØAAAABØAAAABØ*FFFFFØØ
   ØØØØØØØØØØØØ           :REM*32
1Ø2 DATA ØØØØØØØØØØØØØØØØØØØ*Ø
   ØØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
   ØØØØØØØØØØØØ           :REM*74
1Ø3 DATA ØØØØØØØØØØ3FAA5E5EAA*5
   E5EAA5E5EAABEBEAAAA*AAAAAAA
   AFFFFFFØØØØØØ           :REM*187
1Ø4 DATA ØØØØØØØØØØØØØØØØØØØ*Ø
   ØØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
   ØØØØØØØØØØØØ           :REM*76
1Ø5 DATA ØØØØØØØØØØØØØØØØØ5A*5
   E5E5E5E5E5E5E5E5EBE*BEBEAAA
   AAAAAAAAAFFFF           :REM*224
1Ø6 DATA FFØØØØØØØØØØØØØØØØØØ*Ø
   ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
   ØØØØØØØØØØØØ           :REM*22Ø
1Ø7 DATA ØØØØØØØØØØØØØØØØØØØ*Ø
   ØØØØ5A6AA55E6AA55E*6AA55E6
   AABFE6AAAAA6A           :REM*78
1Ø8 DATA AAAA7FFFFFØØØØØØØØØ*Ø
   ØØØØØØØØØØØØØØØØØØ*ØØØØØØØ
   ØØØØØØØØØØØØ           :REM*81
1Ø9 DATA ØØØØØØØØØØØØØØØØØØØ*Ø
   ØØØØØØØØØØØØØØ5555*5ØAAAAB
   ØAAAABØAAAABØ           :REM*1
11Ø DATA 5A5ABØ5E5EBØ5E5EBØ5E*5
   EBØBEBEBØAAAABØAAAA*BØAAAAB
   Ø5A5ABØ5E5EBØ           :REM*237
111 DATA 5E5EBØ5E5EBØBEBEBØAA*A
   ABØAAAABØAAAABØ5A5A*BØA5555
   555AAAAAAAAAA           :REM*226
112 DATA AAAAAAAAA5A5AEA5E5E*E
   A5E5EEA5E5EEABEBEAA*AAAAAAA
   AAAAAAAAAAA5A           :REM*246
113 DATA 5AAA5E5EAA5E5EAA5E5E*A
   ABEBEAAAAAAAAAAAAAA*AAAAA5
   A5ACØ555555AA           :REM*1
114 DATA AAAAAAAAAAAAAAAA5555*5
   555555555555555555*FFFFFFA
   AAAAAAAAAAAA            :REM*2Ø6
115 DATA AAAA5A5A5A5E5E5E5E5E*5
   E5E5E5EBEBEBEAAAAAA*AAAAAAA
   AAAAA5A5A5ACØ           :REM*2ØØ
116 DATA 5555556AAAAA6AAAAA6A*A
   AAA65555565555565555*5565555
   56BFFFF6AAAAA           :REM*147
117 DATA 6AAAAA6AAAAA6AA55A6A*A
   55E6AA55E6AA55E6AAB*FE6AAAA
   A6AAAAA6AAAAA           :REM*15
118 DATA 6AA55AA5          :REM*2Ø
119 DATA -1                :REM*23Ø
```

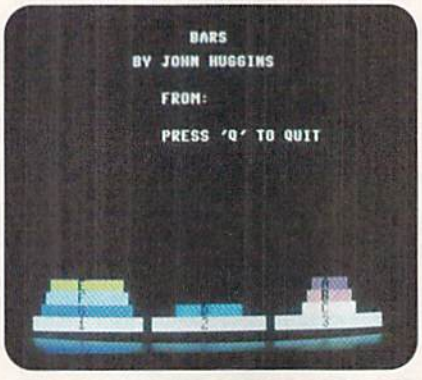
Listing 3. Hotkey demo program. Also available on the September/October ReRUN disk.

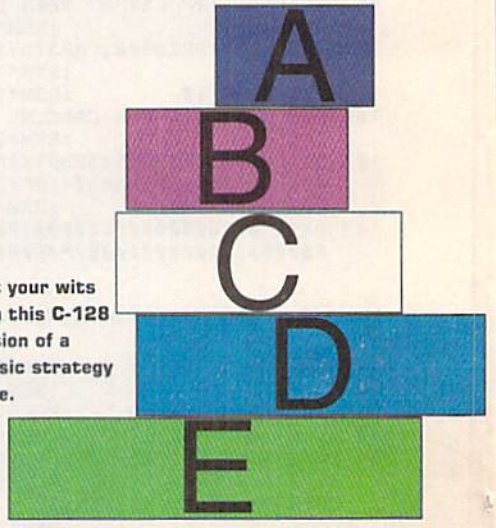
```
1Ø REM HOTKEY DEMO         :REM*2Ø5
2Ø :                       :REM
3Ø REM MAIN PROGRAM        :REM*115
4Ø :                       :REM*98
5Ø POKE5328Ø,Ø:POKE53265,11:POK
   E53281,Ø:PRINT"{SHFT CLR}{4
   CRSR DNs}":POKE53265,27
                           :REM*242
6Ø POKE147,Ø:SYS57812"HOTKEY.ML
   ",8,1:SYS62631          :REM*143
7Ø POKE147,Ø:SYS57812"CALC.ML",
   8,1:SYS62631            :REM*69
8Ø :                       :REM*138
9Ø SYS49752,1Ø2Ø:REM ENABLE HOT
   KEY AND SET LINE TO BRANCH T
   O                       :REM*26
1ØØ :                      :REM*158
11Ø POKE53269,255:FORT=1TO5:NEX
   T:POKE53269,Ø           :REM*245
12Ø A$=CHR$(13)+"{CTRL 2}{14 SP
   ACEs}H O T K E Y"+CHR$(13)+
   CHR$(13)+CHR$(13)       :REM*145
13Ø A$=A$+"{CTRL 3} THE UTILITY
    THAT LETS PROGRAMMERS ADD{
   4 SPACEs}POP-UP DESK TOOLS"
                           :REM*231
14Ø A$=A$+" TO BASIC PROGRAMS"+
   CHR$(13)+CHR$(13)+"{COMD 7}
   {4 SPACEs}IT'S AS EASY AS "
                           :REM*145
15Ø A$=A$+"WRITING A GOSUB{19 S
   PACEs}SUBROUTINE"+CHR$(13)+
   CHR$(13)                :REM*114
16Ø B$=CHR$(13)+"{CTRL 8} TO {C
   OMD 8}HOTKEY{CTRL 8} BETWEE
   N THE APPLICATION AND{3 SPA
   CEs}THE "               :REM*249
17Ø B$=B$+"ACCESSORY. {COMD 8}P
   RESS <F1>{CTRL 8} AT ANY TI
   ME"                     :REM*71
18Ø FORT=1TO11:B$=B$+CHR$(13):N
   EXT                     :REM*64
19Ø FORT=1TOLEN(A$):PRINTMID$(A
   $,T,1);:FORDL=1TO4Ø:NEXT:NE
   XT                      :REM*1
2ØØ FORT=1TOLEN(B$):PRINTMID$(B
   $,T,1);:FORDL=1TO4Ø:NEXT:NE
   XT:GOTO19Ø              :REM*88
21Ø END                    :REM*83
22Ø :                      :REM*23
1ØØØ REM POP-UP CALCULATOR SUBR
   OUTINE                  :REM*156
1Ø1Ø :                     :REM*4Ø
1Ø2Ø V=53248:POKEV+21,Ø:S=255:F
   ORT=2Ø4ØTO2Ø47:POKET,S:S=S
   -1:NEXT                 :REM*73
1Ø3Ø FORT=39TO46:POKEV+T,12:NEX
   T:POKEV+37,15:POKEV+38,11:
   POKEV+28,255            :REM*47
1Ø4Ø S=Ø:FORT=ØTO6STEP2:POKEV+T
   ,32+S:S=S+48:NEXT :REM*141
1Ø5Ø S=Ø:FORT=8TO14STEP2:POKEV+
   T,32+S:S=S+48:NEXT:REM*177
1Ø6Ø FORT=1TO7STEP2:POKEV+T,98:
   NEXT:FORT=9TO15STEP2:POKEV
   +T,14Ø:NEXT             :REM*12Ø
1Ø7Ø POKEV+29,255:POKEV+23,255:
   POKEV+21,255            :REM*2Ø1
1Ø8Ø PRINT"{HOME}{5 CRSR DNs}":
   FORT=1TO7:PRINT"{CRSR RT}{
   23 SPACEs}":NEXT        :REM*14
1Ø9Ø POKEV+27,255:PRINT"{HOME}{
   7 CRSR DNs}"TAB(15)"{COMD
   2}C 7 8 9":PRINT        :REM*78
11ØØ PRINTTAB(4)"{CTRL 3}M+ * +
    %{3 SPACEs}{COMD 2}. 4 5
   6":PRINT                :REM*231
111Ø PRINTTAB(4)"{CTRL 3}MR / -
    ={3 SPACEs}{COMD 2}Ø 1 2
   3"                      :REM*8Ø
112Ø GOSUB128Ø             :REM*178
113Ø RT=V:O1$=OP$          :REM*161
114Ø GOSUB129Ø:V1=V:O2$=OP$
                           :REM*171
115Ø IFO1$="+"THENRT=RT+V1
                           :REM*144
116Ø IFO1$="-"THENRT=RT-V1
                           :REM*233
117Ø IFO1$="*"THENRT=RT*V1
                           :REM*229
118Ø IFO1$="/"ANDV1=ØTHEN121Ø
                           :REM*15Ø
119Ø IFO1$="/"THENRT=RT/V1
                           :REM*32
12ØØ IFLEN(STR$(RT))<12THEN123Ø
                           :REM*219
121Ø PRINT"{HOME}{7 CRSR DNs}{2
    CRSR RTs}{6 SPACEs}ERROR"
   :GETA$:IFA$<>"{HOME}"ANDA$
   <>"{SHFT CLR}"THEN121Ø
                           :REM*137
122Ø GOTO112Ø              :REM*253
123Ø PRINT"{HOME}{7 CRSR DNs}{2
    CRSR RTs}{11 SPACEs}":PRI
   NT"{HOME}{7 CRSR DNs}"TAB(
   13-LEN(STR$(RT)))RT:REM*75
124Ø IFO2$<>"="THENO1$=O2$:GOTO
   114Ø                    :REM*243
125Ø POKE198,Ø:WAIT198,1:GETA$:
   IFA$="="THEN125Ø        :REM*12
126Ø IFA$="+"ORA$="-"ORA$="*"OR
   A$="/"THENO1$=A$:GOTO114Ø
                           :REM*176
127Ø D$="":C=Ø:DP=Ø:Z=Ø:GOSUB13
   1Ø:GOTO113Ø             :REM*165
128Ø PRINT"{HOME}{7 CRSR DNs}{2
    CRSR RTs}{CTRL 7}{1Ø SPAC
   Es}Ø"                   :REM*91
129Ø D$="":B$="{11 SPACEs}":C=Ø
   :DP=Ø:Z=Ø               :REM*115
13ØØ POKE198,Ø:WAIT198,1:GETA$
                           :REM*156
131Ø IFA$="{HOME}"ORA$="{SHFT C
   LR}"THENCLR:GOTO112Ø
                           :REM*182
132Ø IFZAND(A$="+"ORA$="-"ORA$=
   "*"ORA$="/"ORA$="=")THENOP
   $=A$:V=VAL(D$):RETURN
                           :REM*179
133Ø IFA$="."ANDDP=ØTHENDP=1:GO
   SUB137Ø:GOTO136Ø        :REM*233
134Ø IFASC(A$)<48ORASC(A$)>57OR
   C>9THEN13ØØ             :REM*2Ø
135Ø IFA$="Ø"ANDDP=ØANDVAL(D$)=
   ØTHENGOSUB139Ø:GOTO13ØØ
                           :REM*43
136Ø D$=D$+A$:PRINT"{HOME}{7 CR
   SR DNs}"TAB(2)LEFT$(B$,11-
   LEN(D$))D$:C=C+1:Z=1:GOTO1
   3ØØ                     :REM*194
137Ø IFVAL(D$)=ØTHEND$="Ø":C=1:
   Z=1                     :REM*248
138Ø RETURN                :REM*247
139Ø PRINT"{HOME}{7 CRSR DNs}{2
    CRSR RTs}{1Ø SPACEs}Ø":Z=
   1:RETURN                :REM*129
```

■

Stack 'em 128

Sometimes the simplest things are the hardest to master. This C-128 strategy game proves the point.





Test your wits with this C-128 version of a classic strategy game.

By JOHN HUGGINS

How many times have you seen *Casablanca*? Five, ten times? No matter, good films improve the more you see them. Likewise, great games can be played over and over without getting stale. Through scores of versions for scores of computers, they remain popular. They're *classics*. This game is a C-128 version of one of those classics: Bars.

You must move the bars one at a time from stack one to stack three in as few moves as you can; 127 being the fewest possible. You can place short bars on top of long bars, but not vice-versa. That's it.

SIMPLE . . . RIGHT?

Not quite. You can "finish" the game hundreds of times without once solving the puzzle. There are thousands of permutations, but there's only one way to do it right. To end a game, press Q.

Type in Bars from Listing 1 below, using *RUN*'s Checksum program on page 47 to catch any typing errors, and save it to disk. To play, put your C-128 in 40-column mode and type:

RUN"BARS"{RETURN}

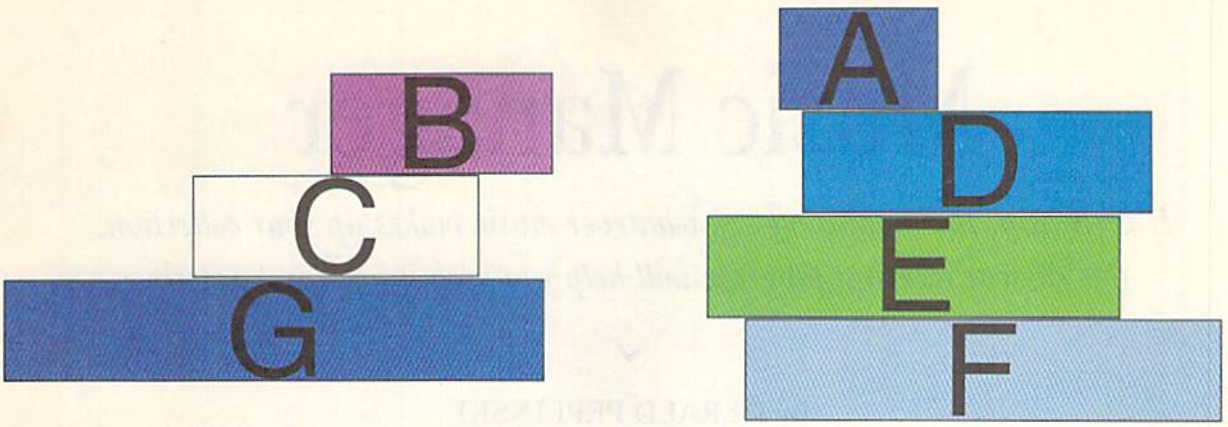
The challenge will soon mount up! R

John Huggins, a foundry worker in Tempe, Arizona, enjoys poetry, photography and programming his C-128.

Listing 1. Bars program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```
1Ø REM BARS                :REM*195
3Ø COLORØ,1:COLOR4,1:COLOR1,2
                           :REM*18
4Ø GRAPHIC1,1              :REM*178
5Ø C$="BARS":Y=1:GOSUB64Ø
                           :REM*24Ø
6Ø C$="BY JOHN HUGGINS":Y=3:GOS
   UB64Ø                   :REM*17
7Ø DIMBA$(6),PI(2,6),CO(6),TP(2
   ),PO(6),PP(2)           :REM*2Ø1
8Ø FORI=ØTO6:PI(Ø,I)=I:PI(1,I)=
   7:PI(2,I)=7:NEXT        :REM*241
9Ø PP(Ø)=16:PP(1)=12Ø:PP(2)=224
                           :REM*91
1ØØ FORI=ØTO6:READPO(I):NEXT:FO
    RI=ØTO6:READCO(I):NEXT
                           :REM*13
11Ø TP(Ø)=Ø:TP(1)=7:TP(2)=7
                           :REM*114
12Ø SSHAPEBL$,8,192,1Ø7,199
                           :REM*97
13Ø COLOR1,3:BOX1,4Ø,136,71,143
    ,,1                    :REM*2
14Ø CHAR1,6,17,"A",1       :REM*221
15Ø SSHAPEBA$(Ø),16,136,95,143
                           :REM*198
16Ø COLOR1,9:BOX1,36,144,75,151
    ,,1                    :REM*25Ø
17Ø CHAR1,6,18,"B",1       :REM*234
18Ø SSHAPEBA$(1),16,144,95,151
                           :REM*199
19Ø COLOR1,8:BOX1,32,152,79,159
    ,,1                    :REM*172
2ØØ CHAR1,6,19,"C",1       :REM*56
21Ø SSHAPEBA$(2),16,152,95,159
                           :REM*137
22Ø COLOR1,7:BOX1,28,16Ø,83,167
    ,,1                    :REM*9Ø
23Ø CHAR1,6,2Ø,"D",1       :REM*11
24Ø SSHAPEBA$(3),16,16Ø,95,167
                           :REM*136
25Ø COLOR1,6:BOX1,24,168,87,175
    ,,1                    :REM*2Ø2
26Ø CHAR1,6,21,"E",1       :REM*9Ø
27Ø SSHAPEBA$(4),16,168,95,175
                           :REM*11
28Ø COLOR1,15:BOX1,2Ø,176,91,18
   3,,1                    :REM*18Ø
29Ø CHAR1,6,22,"F",1       :REM*1Ø1
3ØØ SSHAPEBA$(5),16,176,95,183
                           :REM*12
31Ø COLOR1,5:BOX1,16,184,95,191
    ,,1                    :REM*227
32Ø CHAR1,6,23,"G",1       :REM*18Ø
33Ø SSHAPEBA$(6),16,184,95,191
                           :REM*13
34Ø COLOR1,2:BOX1,8,192,1Ø3,199
    ,,1                    :REM*22Ø
35Ø SSHAPEBS$,8,192,1Ø3,199
                           :REM*33
36Ø GSHAPEBS$,112,192:GSHAPEBS$
    ,216,192               :REM*132
37Ø CHAR1,6,24,"1",1:CHAR1,19,2
    4,"2",1:CHAR1,32,24,"3",1
                           :REM*195
38Ø CHAR1,15,9,"PRESS 'Q' TO QU
    IT"                    :REM*174
39Ø COLOR1,2:CHAR1,15,6,"FROM:"
                           :REM*1Ø4
4ØØ GETKEYF$:IFF$="Q"THEN59Ø
                           :REM*127
41Ø F=VAL(F$):IFF<1ORF>3THEN4ØØ
                           :REM*27
42Ø F=F-1:IFTP(F)=7THEN4ØØ
                           :REM*69
43Ø CHAR1,21,6,F$          :REM*253
44Ø CHAR1,15,7,"TO{2 SPACEs}:"
                           :REM*68
45Ø GETKEYT$:IFT$="Q"THEN59Ø
                           :REM*62
46Ø T=VAL(T$):IFT<1ORT>3THEN45Ø
```

RUN it right: **C-128 in 40-column mode**




```
                    :REM*196
47Ø T=T-1:IFT=FTHENCHAR1,15,7,"
    {5 SPACEs}":CHAR1,21,6," ":
    GOTO4ØØ         :REM*113
48Ø IFTP(T)=7THENV2=7:ELSEV2=PI
    (T,TP(T))       :REM*128
49Ø V1=PI(F,TP(F))  :REM*29
5ØØ IFV1>V2THENCHAR1,21,6," ":C
    HAR1,21,7,"{5 SPACEs}":GOTO
    4ØØ             :REM*156
51Ø CHAR1,21,7,T$   :REM*2Ø3
52Ø CO=CO(V1):P1=PO(TP(F)):P2=P
    O(TP(T)-1)      :REM*248
53Ø COLOR1,CO:GSHAPEBL$,PP(F),P
    1:GSHAPEBA$(V1),PP(T),P2:CT
    =CT+1           :REM*95
54Ø PI(F,TP(F))=Ø:PI(T,TP(T)-1)
    =V1             :REM*25
55Ø TP(F)=TP(F)+1:TP(T)=TP(T)-1
                    :REM*85
56Ø CHAR1,15,7,"{7 SPACEs}":CHA
    R1,21,6," "     :REM*115
57Ø IFTP(2)=ØTHENGOTO6ØØ
                    :REM*153
58Ø GOTO39Ø         :REM*154
59Ø GRAPHICØ,1:COLOR5,2:PRINT"{
    3 CRSR DNs} SORRY,":GOTO61Ø
                    :REM*255
6ØØ GRAPHICØ,1:COLOR5,2:PRINT"{
    3 CRSR DNs} YOU DID IT IN";
    CT;" MOVES"     :REM*225
61Ø PRINT"{CRSR DN}TRY AGAIN?"
                    :REM*33
62Ø GETKEYZ$:IFZ$="Y"THENRUN
                    :REM*18Ø
63Ø GRAPHICCLR:END  :REM*61
64Ø C=(4Ø-LEN(C$))/2 :REM*2Ø6
65Ø CHAR1,C,Y,C$    :REM*21Ø
66Ø RETURN          :REM*33
67Ø DATA136,144,152,16Ø,168,176
    ,184            :REM*2Ø6
68Ø DATA3,9,8,7,6,15,5 :REM*7 ■
```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Music Manager

R & B, rap, Rachmaninoff . . . whatever music makes up your collection, this cassette labeling program will help you keep it neat and orderly.

By GERALD PEPLINSKI

Why did audio cassettes sweep the nation in the past decade? They aren't very durable, it can be a hassle to find a song, and CDs sound much better. Here's why: You can record your own and they're easy to use in the car. In the comfort of your own home, you can tape everything from the Big Band radio hour or that rare Cadillacs LP to your fave Beatles 45s or the latest CD from Skinny Puppy.

But who hasn't fumbled around in a dark glove compartment straining to read illegible labels? (Is that *Chopin* or *Chapman*?) With this program, making neat, easy-to-read cassette labels requires following only a few simple prompts.

Begin by typing in Cassette Labeler using *RUN*'s Checksum on page 47 to catch typing errors, then save it to disk. To use it, simply load and run it as you would any other Basic program.

If your tape has the same title for both sides, you can enter a title up to 40 characters (e.g., *The Eagles Greatest Hits – Volume One*). If, on the other hand, you have different titles for the two sides, each can only be up to 20 characters. At the next screen, enter up to 15 songs per side, 18 characters per song (19 on side two). These function keys make it easy:

F1—print
F3—quit
F5—new label
CONTROL—toggle column
HOME—top of the screen
CLR—clear songs, but keep title(s)
RETURN—next line of same column

Whether you boogie to Bach or waltz to the Wilburys, Cassette Labeler will help you spiff up your music collection.

The cursor, delete and graphics keys work as they normally do, but the quote key doesn't. Don't worry if you type faster than the program—the keyboard buffer will remember your keystrokes. If you press the CONTROL key, however, while the buffer still contains characters, the border will flash until you release it. When this happens, simply wait for a moment and press CONTROL again.

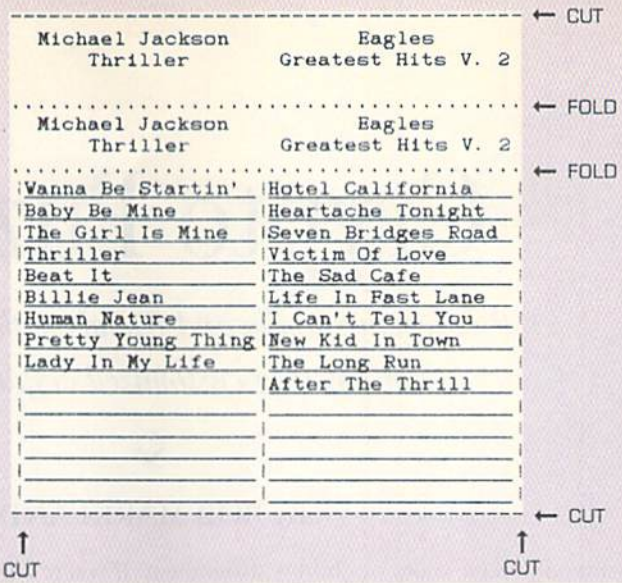
Press F1 to print the label. Divider lines separate side one from side two, dashed lines show where to cut and dotted lines show where to fold. Two labels fit onto one sheet of paper. For added stability, attach your label to the original cardboard insert using a glue stick. R

Music lover Gerald Peplinski is a computer consultant in Chicago. He's been a Commodore fan since 1984.

Listing 1. Cassette Labeler program. Also available on the Sept/Oct ReRUN disk. To order, call 1-800-824-5499.

```
10 REM CASSETTE LABEL GENERATOR
    BY GERALD PEPLINSKI:REM*128
20 POKE 53280,0:POKE53281,12
                          :REM*222
30 POKE650,128            :REM*167
40 POKE808,239            :REM*211
50 PRINT"{COMD 8}{SHFT CLR}{CTR
   L 9}{40 SPACEs}"       :REM*169
60 PRINT"{CTRL 9}{CRSR UP}{11 S
   PACEs}CASSETTE LABEL MAKER{9
    SPACEs}"              :REM*47
70 PRINT"{CTRL 9}{CRSR UP}{40 S
   PACEs}"                :REM*147
80 PRINT:PRINT"{CRSR DN}{COMD 2
   }PRINTS CASSETTE LABELS TO B
   E PLACED"              :REM*246
90 PRINT"INSIDE CASSETTE STORAG
   E BOXES."              :REM*53
100 PRINT"{2 CRSR DNs}{CTRL 8}W
    ILL THE FIRST SIDE HAVE THE
     SAME TITLE AS THE SECOND S
    IDE (Y/N)"            :REM*232
110 GETA$:IFA$=""THEN110
                          :REM*212
120 IFA$="{SHFT Y}"THENA$="Y"
                          :REM*204
130 IFA$="{SHFT N}"THENA$="N"
                          :REM*11
140 IF(A$<>"Y")AND(A$<>"N")THEN
    110                   :REM*61
150 IFA$="Y"THENGOSUB1080
                          :REM*167
160 IFA$="N"THENGOSUB1240
                          :REM*113
170 GOSUB860              :REM*10
180 PRINT"{HOME}{3 CRSR DNs}{CR
    SR RT}";:RO=0:CO=0    :REM*240
190 CT=PEEK(653):IFCT=4ANDPEEK(
    198)<>0THENPOKE53280,3:POKE
    53280,0:GOTO190       :REM*222
200 IFCT=4THENGOSUB550:GOTO190
                          :REM*5
210 GETCH$:IFCH$=""THENGOSUB600
    :GOTO190              :REM*192
220 CR=ASC(CH$)           :REM*217
230 IFCR=3THEN190         :REM*98
240 IFCR=20ANDCO=0ANDRO>0THENPR
    INTTAB(19)"{CRSR UP}";:RO=R
    O-1:CO=18:GOTO190     :REM*57
250 IFCR=20ANDCO=19ANDRO>0THENP
    RINTTAB(39)"{CRSR UP}";:RO=
    RO-1:CO=38:GOTO190    :REM*200
260 IFCR=20ANDCO=19ANDRO=0THEN1
    90                    :REM*48
270 IFCR=20ANDCO>0THENPRINT"{CR
    SR LF} {CRSR LF}";:CO=CO-1
                          :REM*71
280 IFCR=20THEN190        :REM*234
290 IFCR=17ANDRO<14THENPRINT"{C
    RSR DN}";:RO=RO+1:GOTO190
```

RUN it right: **C-64; 80-column printer capable of underlining**



Now you can print neat, easy-to-read cassette labels (and bring order to that pile of tapes in your glove compartment).

```
                              :REM*128
300 IFCR=17THEN190            :REM*38
310 IFCR=29ANDCO<38ANDCO<>18THE
    NPRINT"{CRSR RT}";:CO=CO+1:
    GOTO190                   :REM*250
320 IFCR=29ANDCO=18ANDRO<14THEN
    PRINT:PRINT"{CRSR RT}";:RO=
    RO+1:CO=0                 :REM*208
330 IFCR=29ANDCO=38ANDRO<14THEN
    PRINT:PRINTTAB(20);:RO=RO+1
    :CO=19                    :REM*0
340 IFCR=29THEN190            :REM*127
350 IFCR=145ANDRO>0THENPRINT"{C
    RSR UP}";:RO=RO-1:GOTO190
                              :REM*209
360 IFCR=145THEN190           :REM*7
370 IFCR=157ANDCO>0ANDCO<>19AND
    RO>=0THENPRINT"{CRSR LF}";:
    CO=CO-1:GOTO190           :REM*141
380 IFCR=157ANDCO=0ANDRO>0THENP
    RINT"{CRSR UP}"TAB(19);:CO=
    18:RO=RO-1:GOTO190        :REM*117
390 IFCR=157ANDCO=19ANDRO>0THEN
    PRINT"{CRSR UP}"TAB(39);:CO
    =38:RO=RO-1:GOTO190:REM*248
400 IFCR=157THEN190           :REM*91
410 IFCR=19THEN180            :REM*183
420 IFCR=133THEN670           :REM*70
430 IF((CR=13ORCR=141)ANDRO<14A
    NDCO<=18)THENRO=RO+1:CO=0:P
    RINT:PRINT"{CRSR RT}";
                              :REM*168
440 IF((CR=13ORCR=141)ANDRO<14A
    NDCO>18)THENPRINT:PRINTTAB(
    20);                      :REM*152
450 IF((CR=13ORCR=141)ANDRO<14A
    NDCO>18)THENRO=RO+1:CO=19
                              :REM*176
460 IFCR=13ORCR=141THEN190
                              :REM*122
470 IFCR=134THEN1610          :REM*183
480 IFCR=135THENRUN           :REM*79
490 IFCR=147ANDA$="Y"THENGOSUB1
    170:GOTO170               :REM*116
500 IFCR=147ANDA$="N"THENGOSUB1
    410:GOTO170               :REM*52
510 IFCR=148ORCR=34THEN190
                              :REM*53
520 IFCR>=135ANDCR<=140THEN190
                              :REM*60
530 IFCO<38ANDCO<>18THENPRINTCH
    $;:CO=CO+1                :REM*74
540 GOTO190                   :REM*118
550 IFPEEK(653)=4THEN550
                              :REM*225
560 IFCO<19THENFORX=COTO18:PRIN
    T"{CRSR RT}";:CO=CO+1:NEXT:
    RETURN                    :REM*2
570 IF(CO>18ANDRO<14)THENPRINT:
    CO=0:PRINT"{CRSR RT}";:RO=R
    O+1:RETURN                :REM*149
580 IF(CO>18ANDRO=14)THENPRINT"
    {HOME}{3 CRSR DNs}{CRSR RT}
    ";:RO=0:CO=0:RETURN       :REM*4
590 RETURN                    :REM*222
600 PO=(RO*40)+1145+CO        :REM*128
610 RR=PEEK(PO):OC=PEEK(PO+5427
    2)                        :REM*143
620 POKEPO+54272,1            :REM*54
630 POKE PO,RR+128            :REM*226
640 FORX=1TO199:NEXT          :REM*79
650 POKEPO+54272,OC:POKEPO,RR
                              :REM*112
660 RETURN                    :REM*33
670 OPEN1,4                   :REM*247
680 FORX=0TO39:PRINT#1,"-";:NEX
    T:PRINT#1                 :REM*126
690 FORY=0TO1:FORX=0TO39:GOSUB8
    00:NEXT:PRINT#1:NEXT:PRINT#
    1                         :REM*63
700 FORX=0TO39:PRINT#1,".";:NEX
    T:PRINT#1                 :REM*31
710 FORY=0TO1:FORX=0TO39:GOSUB8
    00:NEXT:PRINT#1:NEXT      :REM*8
720 FORX=0TO39:PRINT#1,".";:NEX
    T:PRINT#1                 :REM*51
730 PRINT#1,CHR$(27)CHR$(45)CHR
    $(1);                     :REM*132
740 FORY=3TO17:FORX=0TO39:GOSUB
    800                       :REM*114
750 NEXT:PRINT#1:NEXT         :REM*148
760 PRINT#1,CHR$(27)CHR$(45)CHR
    $(0);                     :REM*246
770 FORX=0TO39:PRINT#1,"-";:NEX
    T                         :REM*69
780 FORX=1TO9:PRINT#1:NEXT
                              :REM*145
790 PRINT#1:CLOSE1:GOTO190
                              :REM*165
800 CH=PEEK(Y*40+X+1024)
                              :REM*111
810 IF(CH>=0ANDCH<=31)THENPRINT
    #1,CHR$(CH+64);:RETURN
                              :REM*89
820 IF(CH>=32ANDCH<=63)THENPRIN
    T#1,CHR$(CH);:RETURN
                              :REM*242
830 IFCH=93THENPRINT#1,CHR$(125
    );:RETURN                 :REM*228
840 IF(CH>=64ANDCH<=95)THENPRIN
    T#1,CHR$(CH+32);:RETURN
                              :REM*198
850 IF(CH>=91ANDCH<=127)THENPRI
    NT#1,CHR$(CH+128);:RETURN
                              :REM*212
860 FORX=1144TO1704STEP40
                              :REM*154
870 POKEX+54272,9:POKEX+54291,9
    :POKEX+54311,9            :REM*119
880 POKEX,93:POKEX+19,93:POKEX+
    39,93                     :REM*50
890 NEXT                      :REM*255
900 FORX=1104TO1143           :REM*107
910 POKEX+54272,9:POKEX+54912,9
                              :REM*44
920 POKEX,64:POKEX+640,64
                              :REM*110
930 NEXT:PRINT"{HOME}";:REM*186
940 POKE1104+54272,9:POKE1104,1
    12                        :REM*139
950 POKE1143+54272,9:POKE1143,1
    10                        :REM*167
960 POKE1744+54272,9:POKE1744,1
    09                        :REM*124
970 POKE1783+54272,9:POKE1783,1
    25                        :REM*22
980 POKE1123+54272,9:POKE1123,1
    14                        :REM*112
990 POKE1763+54272,9:POKE1763,1
    13                        :REM*181
1000 FORX=1TO19:PRINT"{CRSR DN}
    ";:NEXT                   :REM*91
1010 PRINT"{CTRL 7}{2 SPACEs}CO
    NTROL = TOGGLE COLUMN
                              :REM*214
1020 PRINT"{2 SPACEs}HOME{4 SPA
    CEs}= TOP OF SCREEN
                              :REM*233
1030 PRINT"{2 SPACEs}CLR{5 SPAC
    Es}= CLEAR SONGS  :REM*170
1040 PRINT"{2 SPACEs}CURSOR{2 S
    PACEs}= UP, DOWN, LEFT, RI
    GHT                       :REM*104
1050 PRINT"{2 SPACEs}RETURN{2 S
    PACEs}= NEXT LINE :REM*203
1060 PRINT"{CTRL 8}{4 SPACEs}F1
    =PRINT{3 SPACEs}F3=QUIT{3
    SPACEs}F5=NEW LABEL{HOME}{
    CTRL 2}"                  :REM*142
1070 RETURN                   :REM*184
```

Continued on p. 30.

RUN it right: **C-64; 80-column printer capable of underlining**

Crypto Puzzler

Puzzle your family and friends with this program for creating customized cryptograms.

By BOB MARKLAND

Covert operations, secret codes and cryptic messages bring out the 007 in all of us, and Crypto Puzzler is just what the CIA ordered. Cryptogram puzzles, where one letter is directly substituted for another, have long been a staple in puzzle magazines. With Crypto Puzzler, you can create cryptograms, solve them on-screen, save them to disk or print them out.

Begin by typing in Listing 1, below, using *RUN*'s Checksum on page 47, then save the program to disk. To use Crypto Puzzler, simply load and run it as you would any other Basic program.

Creating the Puzzles

The first screen asks if you want to load a puzzle. The first time you use the program, you won't have created any puzzles yet, so press N. When the editing screen appears, type in the text for a puzzle. It can be any message up to 239 characters, including spaces. You can use only uppercase letters and standard punctuation. If you make a mistake while typing, use the INST/DEL key to remove the error and retype the text. Note: Do not break words at the end of a line. If a word will not fit on a line, add spaces until the cursor scrolls to the next line and begin the word there.

Puzzles can be very simple or quite difficult, depending upon the text. The shorter the text, the more difficult the puzzle. (Normal patterns of letter usage and sentence structure become more apparent as the length increases.) You can use famous quotes, biblical passages, your own secret messages, even text from a history assignment. If you're a puzzle fan, have someone else create puzzles and save them to disk for you.

When you're satisfied with the text, press F1. The program will encrypt the text and return you to the main menu.

If you choose option 3 from the menu, the program will save the puzzle as a sequential file with the prefix CP. When loading in existing puzzles, do not include this prefix. Be sure to check the disk directory before running the program, because Crypto Puzzler does not have a directory function. If you try to load or save a puzzle name improperly, you will be prompted to enter another name. Puzzles do not have to be saved on the same disk as the program.

Anatomy of a Cryptogram

In a cryptogram, each letter is replaced by another that is picked randomly. For example, the letter Q could be substituted for the letter E, B could replace T, and so on. The puzzle might then display BQRB. Of course, substitutions remain constant throughout the entire puzzle, so if Q equals E in one place, Q will stand for E every time it appears in the puzzle.

If you are solving the puzzle, and think you know one of the substitutions, type it in using the keyboard. For example, if you think R in BQRB is a D, type R=D then press RETURN or F1. Crypto Puzzler will place a D in the highlighted area below each R in the puzzle. *This may or may not be correct*; the program won't tell you. If you've made a mistake (as in this example), you can retry simply by typing in your new guess (R=X). Every occurrence will change to reflect your latest choice.

In the example above, BQRB stands for *TEXT*. But remember, each time Crypto Puzzler encrypts a message, it will use a different substitution pattern.

When you approach a puzzle, look first for obvious clues. For instance, a single-letter word will always be either an A or an I. Hyphenated words, words with an apostrophe, words in quotes and double letters all provide valuable clues. Patterns for words like *the* and *and* may appear frequently. E is the most common letter in the English language, Z is the least common, and all vowels appear frequently.

When all the letters have been properly substituted, Crypto Puzzler will tell you that you have solved the puzzle. If you wish to give up, type ===. The program will display the entire message and return you to the main menu.

Crypto Puzzler has a built-in timer for competition. To compete, you need two players and a referee. The first player solves the puzzle without the other present. Then the second player solves the puzzle. The referee records both times and the faster player wins. Or, print out several copies of a puzzle and have players solve it simultaneously.

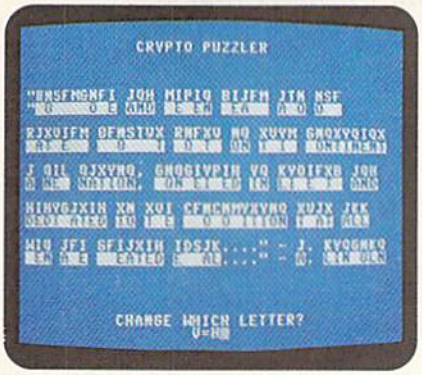
Cryptograms can be useful educational tools, both in the content of the message, and by teaching problem-solving logic skills. (A gold star if you recognized the Gettysburg Address in the photograph on the next page!) R

Bob Markland of Wyoming has been programming computers since the early '80s.

Listing 1. Crypto Puzzle program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```
 Ø REM: CRYPTO PUZZLER BY: R. M
   ARKLAND                :REM*154
2Ø :                      :REM*78
3Ø PRINT"{SHFT CLR}{CTRL 2}"CHR
   $(142)CHR$(8):POKE5328Ø,6:ML
   =828:A=78Ø:XR=781:CO=646:BG=
   647                    :REM*112
4Ø DIMHO$(24Ø),TE$(24Ø),CO$(24Ø
   ),SOL$(24Ø),CC(26),AI(26):S=
   6552Ø:QU=212           :REM*193
5Ø VP=781:HP=782:SZ=Ø:TC=Ø:Z=Ø:
   M=Ø:I1=61:I2=Ø:W$="WORKING,
```

RUN it right: **C-64**



Cryptograms bring out the 007 in all of us. Can you decipher this important historical text?

```
    PLEASE WAIT...."          :REM*78
6Ø GOSUB1Ø4Ø:POKEVP,7:POKEHP,8:
    SYSS:PRINTW$:IFFL=ØTHENFL=1:
    GOSUB118Ø                 :REM*2
7Ø GOTO41Ø                    :REM*136
8Ø X=1:Z=5:FORR=1TO6:GOSUB16Ø
                              :REM*194
9Ø FORC=1TO4Ø:IFCO$(X)=""THENC=
    4Ø:R=6:NEXT:NEXT:RETURN
                              :REM*3
1ØØ PRINTCO$(X);:X=X+1:NEXT:Z=Z
    +3:NEXT:RETURN            :REM*166
11Ø Y=1:Z=6:FORR=1TO6:GOSUB16Ø
                              :REM*232
12Ø FORC=1TO4Ø:IFSOL$(Y)=""THEN
    POKEQU,.:PRINTNT$;:C=4Ø:R=6
    :NEXT:NEXT:RETURN         :REM*234
13Ø POKEQU,.:PRINTRO$;:IFCO$(Y)
    =>" "ANDCO$(Y)<"@"THENPRINT
    NT$;                      :REM*211
14Ø PRINTSOL$(Y);:Y=Y+1:NEXT:Z=
    Z+3                       :REM*157
15Ø NEXT:RETURN               :REM*53
16Ø POKEVP,Z:POKEHP,Ø:SYSS:RETU
    RN                        :REM*7
17Ø POKE2Ø4,Ø:TC=1            :REM*181
18Ø POKEBG,PEEK(CO)           :REM*193
19Ø GETKI$:IFKI$=""THEN19Ø
                              :REM*247
2ØØ POKEA,M:POKEXR,ASC(KI$):SYS
    ML:IFPEEK(A)THEN25Ø       :REM*73
21Ø IFKI$=CHR$(2Ø)ANDTC>1THENHO
    $(TC)="":TC=TC-1:GOTO28Ø
                              :REM*22Ø
22Ø IFKI$=CHR$(I1)THEN25Ø
                              :REM*52
23Ø IFKI$=CHR$(133)ORKI$=CHR$(I
    2)THENPRINT" ";:POKE2Ø4,1:R
    ETURN                     :REM*64
24Ø GOTO18Ø                   :REM*64
25Ø IFTC>(LE)THEN18Ø          :REM*241
26Ø HO$(TC)=KI$               :REM*247
27Ø PRINTKI$;:TC=TC+1:GOTO18Ø
                              :REM*252
28Ø POKEBG,PEEK(53281):POKEQU,Ø
    :PRINT"{CRSR LF}{2 SPACEs}{
    2 CRSR LFs}";:GOTO18Ø
                              :REM*215
29Ø FORR=1TO24Ø:CO$(R)="":SOL$(
    R)="":NEXT:FORR=1TOSZ:TE$(R
    )=HO$(R):NEXT             :REM*67
3ØØ FORR=1TO26:CC(R)=.:AI(R)=.:
    NEXT:FORI=1TO26           :REM*13
31Ø X=INT(RND(Ø)*26)+1:IFI<26AN
    DI=XTHEN31Ø               :REM*62
32Ø IFCC(X)=ØTHENAI(I)=X:REM*35
33Ø IFCC(X)=1THEN31Ø          :REM*9
34Ø CC(X)=1:NEXT:RETURN       :REM*28
35Ø FORR=1TO26:IFAI(R)=RTHENR=2
    6:NEXT:GOTO3ØØ           :REM*69
36Ø NEXT:RETURN               :REM*12
37Ø FORR=1TOSZ:SOL$(R)=" ":AV$=
    TE$(R)                    :REM*243
38Ø IFAV$>CHR$(31)ANDAV$<CHR$(6
    4)THENSOL$(R)=AV$:CO$(R)=AV
    $:GOTO4ØØ                 :REM*75
39Ø EN=ASC(AV$)-64:CO$(R)=CHR$(
    AI(EN)+64)                :REM*176
4ØØ NEXT:RETURN               :REM*52
41Ø SE$="{6 SPACEs}PLEASE SELEC
    T{6 SPACEs}":PA$=" AGAIN"
                              :REM*143
42Ø P1$="1.{2 SPACEs}PRINT THIS
     PUZZLE":P2$="2.{2 SPACEs}S
    OLVE THIS PUZZLE"         :REM*62
43Ø P3$="3.{2 SPACEs}SAVE PUZZL
    E TO DISK":P4$="4.{2 SPACEs
    }CREATE/LOAD NEW PUZZLE"
                              :REM*2Ø
44Ø P5$="5.{2 SPACEs}QUIT":RO$=
    CHR$(18):NT$=CHR$(146)
                              :REM*182
45Ø POKEVP,7:POKEHP,Ø:SYSS
                              :REM*118
46Ø PRINTTAB(12)"{3 CRSR DNs}LO
    AD A PUZZLE?":PRINTTAB(15)"
    {CRSR DN}Y -/- N"         :REM*163
47Ø GETD$:IFD$=""THEN47Ø
                              :REM*156
48Ø IFD$="N"THENGOSUB1Ø4Ø:PRINT
    :GOTO59Ø                  :REM*1Ø6
49Ø IFD$<>"Y"THEN47Ø          :REM*99
5ØØ PRINTTAB(7)"{CRSR DN}ENTER
    FILENAME (OMIT CP.)":REM*63
51Ø POKEVP,16:POKEHP,13:SYSS:LE
    =13:M=1Ø:I2=13:GOSUB17Ø:NA=
    TC-1                      :REM*231
52Ø NA$="":FORR=1TONA:NA$=NA$+H
    O$(R):NEXT                :REM*127
53Ø OPEN15,8,15:OPEN8,8,8,"Ø:CP
    ."+NA$+",S,R":GET#15,ER
                              :REM*39
54Ø IFER<>ØANDER<>63THENCLOSE8:
    CLOSE15:GOTO6Ø            :REM*183
55Ø INPUT#8,SZ:FORR=1TOSZ:INPUT
    #8,TE$(R)                 :REM*169
56Ø TE$(R)=CHR$(ASC(TE$(R))AND1
    27):NEXT:FORR=1TO26:INPUT#8
    ,AI(R):NEXT               :REM*194
57Ø GET#15,ER:IFERTHENCLOSE8:CL
    OSE15:GOTO6Ø              :REM*117
58Ø CLOSE8:CLOSE15:FORR=1TO24Ø:
    CO$(R)="":SOL$(R)="":NEXT:G
    OTO64Ø                    :REM*6
59Ø PRINT" ENTER THE DESIRED TE
    XT - END WITH {CTRL 9}[F1]{
    CTRL Ø}"                  :REM*53
6ØØ PRINT"{CRSR DN}{CTRL 9}{4Ø
    COMD Is}{5 CRSR DNs}"
                              :REM*145
61Ø PRINT"{4Ø COMD Is}" :REM*63
62Ø POKEVP,1Ø:POKEHP,Ø:SYSS:LE=
    239:M=13:I2=Ø:GOSUB17Ø:SZ=T
    C-1                       :REM*26
63Ø POKEVP,2Ø:POKEHP,8:SYSS:PRI
    NTW$:GOSUB29Ø             :REM*171
64Ø GOSUB37Ø:SP=7:GOTO72Ø
                              :REM*161
65Ø GOSUB1Ø4Ø:PRINTTAB(5)"CHECK
     PRINTER AND ALIGN PAPER"
                              :REM*85
66Ø PRINTTAB(9)"{CRSR DN}PRESS
    ANY KEY TO PRINT          :REM*154
67Ø GETD$:IFD$=""THEN67Ø
                              :REM*189
68Ø OPEN4,4:X=1:FORR=1TO6:FORC=
    1TO4Ø                     :REM*49
69Ø IFCO$(X)=""THENC=4Ø:NEXT:R=
    6:GOTO71Ø                 :REM*93
7ØØ PRINT#4,(CO$(X));:X=X+1:NEX
    T:PRINT#4:PRINT#4:PRINT#4
                              :REM*133
71Ø NEXT:PRINT#4:PRINT#4:PRINT#
    4:CLOSE4:PC=1:SP=6        :REM*119
72Ø GOSUB1Ø4Ø:PRINTTAB(7)"{2 CR
    SR DNs}"SE$:PRINTTAB(SP)"{C
    RSR DN}"P1$;:IFPC=1THENPRIN
    TPA$;                     :REM*242
73Ø PRINT:PRINTTAB(SP)"{CRSR DN
    }"P2$:PRINTTAB(SP)"{CRSR DN
    }"P3$                     :REM*57
74Ø PRINTTAB(SP)"{CRSR DN}"P4$:
    PRINTTAB(SP)"{CRSR DN}"P5$
                              :REM*99
75Ø GETD$:IFD$<"1"ORD$>"5"THEN7
    5Ø                        :REM*8Ø
76Ø IFD$="1"THEN65Ø           :REM*4Ø
77Ø IFD$="3"THEN1Ø6Ø          :REM*97
78Ø IFD$="4"THEN6Ø            :REM*5Ø
79Ø IFD$="5"THEN1Ø5Ø           :REM*156
8ØØ GOSUB1Ø4Ø:POKEVP,23:POKEHP,
    8:SYSS:PRINTW$:PRINTTAB(18)
    "{3 SPACEs}";             :REM*192
81Ø GOSUB8Ø:GOSUB11Ø:TI$="ØØØØØ
    Ø"                        :REM*213
82Ø POKEVP,23:POKEHP,5:SYSS:PRI
```

Continued on p. 42.

RUN it right: **C-64**

PROTIPS

Readers share tips on converting graphics files, autobooting macros and more.

By JANICE CROTTY

WORD WRITER 128 & RAMLINK: If you'd like to use Word Writer 128 with RAMLink, create a 1571 partition and a 1541 partition.

In the 1571 partition, create a boot sector called Loader and make it binary. Then, copy the Word Writer program files and printer files using FCopy. Also copy the dictionary and the program files from side two onto the 1571 partition. (Note: There are two programs called "version," one on each side of the disk. I only use the one from side one and Word Writer runs fine.)

Next, use MCopy to copy the Thesaurus disk to the 1541 partition.

Set RAMLink to #8 using the swap pad. And, using the @CP command, set the partition number to the partition where you put Loader. Boot the program. Word Writer should default to #8, and, because the dictionary is in the 1571 partition, there will be no problem using it.

When you need to use the thesaurus, press ESC, cursor left to DISK COMMANDS and hit RETURN. Cursor up to DOS COMMANDS and press RETURN. At the DOS command prompt, type CP and the number of your thesaurus partition and press RETURN. This will show you 02,PARTITION SELECTED, 0#,00,–PRESS ANY KEY. You can now use the thesaurus.

When you have finished, repeat the procedure of the DOS command and you will return to the 1571 partition.

Plus, with the Autofile program on the RAMLink utilities disk, you can have Word Writer 128 boot on start-up.

—WILLIAM KEMPERT
WOODSTOCK, ONTARIO

COMMODORE 1351 MOUSE: The Commodore 1351 mouse's proportional mode really speeds up work with GEOS, but the mouse takes up joystick port 1. Luckily, the mouse comes with a built-in joystick mode. To activate the joystick mode, hold down the right mouse button when powering up the computer. Joystick mode lets you use the mouse in place of a joystick with games and other software that don't support the mouse. It also helps if the proportional mode fails, so you can continue to use your mouse with GEOS by using the GEOS joystick input driver.

—RYAN HIDALGO
GARNERVILLE, NY

POCKET WRITER: Like many Commodore users, I am an avid fan of Pocket Writer. Over the years I have discovered several glitches, however, a few of which I've been able to solve.

First, the manual fails to indicate how to center the enlarged text that you can get by using Pitch 10. Setting margins of 1 and 40 will solve the problem.

Second, I was annoyed to find that, when I tried to center automatic page numbers (",<> "), the number usually appeared too far to the left. To solve the problem, place the <> symbols several spaces to the right.

—ELROY GRANDY
GARNISH, NEWFOUNDLAND

GEOS: Here is a neat trick to try if you don't have a mouse to use with GEOS. Take a joystick that has an auto fire switch, such as the QuickShot II+. Load GEOS, plug the joystick in port 2 and switch on the auto fire. The pointer will move one pixel at a time when you press these keys:

(=up
I=down
J=left
Ø=right

In geoPaint this is a great asset. Unfortunately, though, this feature cannot be used effectively with geoWrite.

—JAMES BAKER
COLORADO SPRINGS, CO

PAPERCLIP III: There is no need to restrict your comments to a single screen line. While I was working recently, two full screens of text didn't print. Indeed, the CHECKMARK CM (comment) directive is in effect until it finds a RETURN (paragraph marker) or a checkmark, so your nonprintable text can go on and on.

A second PC III tidbit: If you press CONTROL/B while in directory mode, you'll destroy any document currently in memory!

—MICHAEL HABERMANN
BALTIMORE, MD

COMMON SENSE: Do you use macros? Don't you wish the program would default to your macros? It can, if you do the following:

1) Program in your macros. (Refer to the manual for instructions.)
2) Save your macros on the Common Sense disk with any name you want.
3) Using Disk Wedge, scratch the program mac.boot. (Trust me!)
4) Rename your macros program as mac.boot. Now you will default to your macros every time.

If you're nervous about scratching mac.boot, save a copy to a backup disk before scratching it.

—RENE CUSSON
CHATHAM, NEW BRUNSWICK

BIG BLUE READER: For clip art conversions between Commodore format and MS-DOS format, I have found IConvert and Big Blue Reader an excellent combination, as Allie Hunter wrote in ProTips in September/October '91. But the MS-DOS to CBM conversion need not be as difficult as Allie describes. Big Blue Reader will save files in the PRG format—you don't have to go through the complicated "erase SEQ file and unerase PRG file" routine.

When converting files to CBM format, Big Blue Reader gives you two choices. To the first, "Translate to Commodore ASCII?", answer no, because a graphic file is not in PET-ASCII. If you answer no to the second question, "Retain same filename?", you will be prompted for a filename for each graphic before it is written to disk. Type FILENAME,P and the graphic file will be saved in the PRG format. Typing FILENAME without the ,P will default the save to a sequential format.

—JOHN SCUDDER
CENTER HARBOR, NH ■

128 Mode

Discover the Print Using command's versatility and power—one of the best-kept secrets in C-128 Basic programming.

By MARK JORDAN

THE EASIEST OF ALL Basic commands to learn to use is Print. In fact, it's *so* easy to use, even seasoned programmers may forget that it has a sophisticated younger sibling: Print Using. But, why bother learning a new command when you've already got one that does its job quite well? I mean, what *can't* Print do?

By itself, lots. The Print command has to labor to format columns of text or numbers, especially numbers. To print a neat column of dollars and cents using Print, you have to do something like this:

```
PRINT LEFT$("
"+STR$(ABS(NUMBER)))
+"."+STR$(NUMBER-ABS(NUMBER))
```

Whereas Print Using would handle the same situation like this:

```
PRINT USING "####.##";{NUMBER}
```

Print Using can float a dollar sign alongside the number (or move it to the left position), place commas in specified locations, use dots (periods) as column leaders (e.g., Smith.....$347.21), incorporate strings readily (centered, left- or right-justified) and more.

The main reason Print Using gets overlooked is because it's just about the most poorly documented command in the *User's Guide*. I'll try to remedy that right now.

Putting Print Using to Work

The big difference between Print and Print Using is what's called the "format list." This is nothing more than the predefined output pattern you want. Let's dissect the following statement piece by piece and have a look.

```
PRINT USING "#####" ; 135
```

1. The first word, PRINT, is the same as in the plain ol' Print statement.

2. Between the keywords PRINT and USING you have the opportunity to direct your results to a file if you want to, such as a printer file or disk file. You do this the same way you direct output to any device, with the pound sign and a logical file number. Thus, in PRINT #2, USING the output is sent to file 2.

3. Next comes the keyword USING.

4. An opening quote and the format list come next. The list must be within quotes unless you predefine a string as your format list. If you use a string, your format list might take the form: PRINT USING F$; 135.

5. Whether you elect to predefine the format list, or define it within the Print Using statement, it's what's between the buns (i.e., quotes) that matters. In our model, the list consists of five pound signs (#####). These tell the computer the printing column width is five characters wide. If you're printing numbers, Print Using will right-justify the output, printing two spaces then the number 135. This way numbers are always conveniently lined up on the right. We'll discuss the format list more in a minute.

6. The end-quote. No surprise; it terminates the format list.

7. The semicolon is needed to separate the format list from the print list—a necessary formality.

8. The print list. Here's what you want printed. The example above shows a single item, the number 135, but the list can be as many items as you wish, both text and numeric values, constants and variables. Your only grammatical requirement is to separate each with a comma:

```
PRINT USING "#####" ; 135,NM
```

Each succeeding column begins where the preceding one ends. Therefore, if you set your format list five places wide (five pound signs) your output columns will begin every five spaces. Thus if NM above equaled 15893, the output would look like this: 13515893. To correct this problem and keep columns separate, you simply widen the format list.

Digging Deeper

That's a quick overview. Now let's dig deeper into that format list. Besides the pound sign, eight other symbols are at your disposal to alter how Print Using handles the print list.

Pound (#) As mentioned, this simply reserves a place for output.

Plus (+) Placing a plus sign at the beginning of your format list will cause all positive numbers to be preceded by a plus (+). Placing the plus sign at the end of the format list will cause a plus sign to print after positive numbers.

Minus (–) This works like the above, only it attaches minus signs to negative numbers. (When this is used, positive numbers do not receive plus signs.)

Decimal (.) Placing a period in your format list determines how many digits to the right of the period you want displayed. For example, PRINT USING "####.##" ; MONEY would produce 78.00 if MONEY equaled 78. This is handy for printing a column of financial values (dollars and cents).

Dollar ($) This symbol (that favorite of Americans everywhere) will automatically output a dollar sign with all numeric values. You can have a floating dollar sign (one that always appears immediately to the left of the number) by placing it in the second place (like this: "#$####.##"). Locating it elsewhere forces it to appear where you place it.

Comma (,) The comma simply allows you to force a comma wherever you want in the format field. Therefore, to put it between the hundreds and thousands place, you'd place it between the third and fourth pound signs to the left of the decimal, as in "###,###.##".

Up-Arrows (^) Four up-arrows in the format field will cause the result to be printed in scientific notation.

Equal (=) This symbol plus the next one deal only with string output. The equal sign causes the text to be centered within the format field.

Greater than (>) This symbol causes text to be right-justified rather than its default of left-justified.

Some Quirks & PUDEF

Print Using has some quirks you need to be aware of. Symbols placed between the quotes in the format list count toward the column width, not *just* pound signs.

Fractions are automatically rounded.

Unlike Print, you can't use the semicolon to keep the cursor in place.

If your output exceeds the places reserved in the format list, you'll see stars (asterisks, actually). With text strings, the string is truncated—that is, chopped off ►

—when it exceeds the column width.

A related command, PUDEF, lets you change the filler character (which defaults to a blank space) to whatever you want. This allows for neat lists with periods between columns. Here's a sample:

```
PUDEF ".":PRINT USING
"######. ##"; NAME$,AMOUNT
```

If NAME$="Bob" and AMOUNT = 13.72 the output would look like this:

```
BOB....13.72
```

PUDEF also allows you to change the comma character, the decimal point, and the dollar sign. See the program below (and your *User's Guide*) for more details on the use of PUDEF.

It's tough in this limited space to say all I'd like to about Print Using. The short program below should serve to illustrate further the value of this overachieving but underrated command. R

Mark Jordan is RUN*'s untiring 128 Mode columnist and a high school English teacher. He lives in Goshen, Indiana.*

Listing 1. Print Using example program. Also available on the September/October ReRUN disk.

```
10 REM CLEAR THEN SET EVERYTHIN
   G TO UPPERCASE/LOWERCASE
                          :REM*37
20 PRINT "{SHFT CLR}"CHR$(14)
                          :REM*97
30 REM CREATE A FORMAT STRING W
   HICH CENTERS ON A 40-COLUMN
   SCREEN                 :REM*73
40 CENTER$="=":FORT=2TO40:CENTE
   R$=CENTER$+"#":NEXT    :REM*35
50 REM READ IN AND PRINT WITH P
   RINT                   :REM*241
60 FORT=1 TO 6:READ NAME$(T),OW
   ED(T),PAID(T):PRINTNAME$(T),
   OWED(T),PAID(T):NEXT:REM*239
70 REM NOTE IT'S CENTERED
                          :REM*57
80 PRINT USING CENTER$;"{SHFT A
   }BOVE IS {SHFT P}{SHFT R}{SH
   FT I}{SHFT N}{SHFT T}'S UGLY
    OUTPUT"               :REM*169
90 SLEEP4                 :REM*8
100 PRINT USING CENTER$;"{CRSR
   DN}{SHFT N}OW WATCH {SHFT P
   }{SHFT R}{SHFT I}{SHFT N}{S
   HFT T}{SHFT SPACE}{SHFT U}{
   SHFT S}{SHFT I}{SHFT N}{SHF
   T G} WORK"             :REM*205
110 REM USE PRINT USING FOR A H
   EADER                  :REM*195
120 PRINT USING "=##########";"{
   SHFT N}AME","{SHFT D}UES","
   {SHFT A}MT PAID","{SHFT A}M
   T {SHFT D}UE"          :REM*92
130 REM DO IT             :REM*75
140 FORT=1 TO 6           :REM*14
150 PRINT USING "#$#,###.##";NA
   ME$(T),OWED(T),PAID(T),OWED
   (T)-PAID(T)            :REM*152
160 NEXT                  :REM*35
170 REM USE A PERIOD FOR LEADER
                          :REM*123
180 A=A+1:IFA=1THEN PUDEF".":GO
   TO90                   :REM*100
190 REM TRY A DASH OF DASH
                          :REM*73
200 IFA=2THEN PUDEF"-":GOTO90
                          :REM*242
210 DATA MILF,25,13.62, ROSIE,2
   5,11, VALERIE,50,50:REM*107
220 DATA SHERRY,1500,1500, JANE
   LLE,94.27,0, PATRICE,75,42
                          :REM*138
```

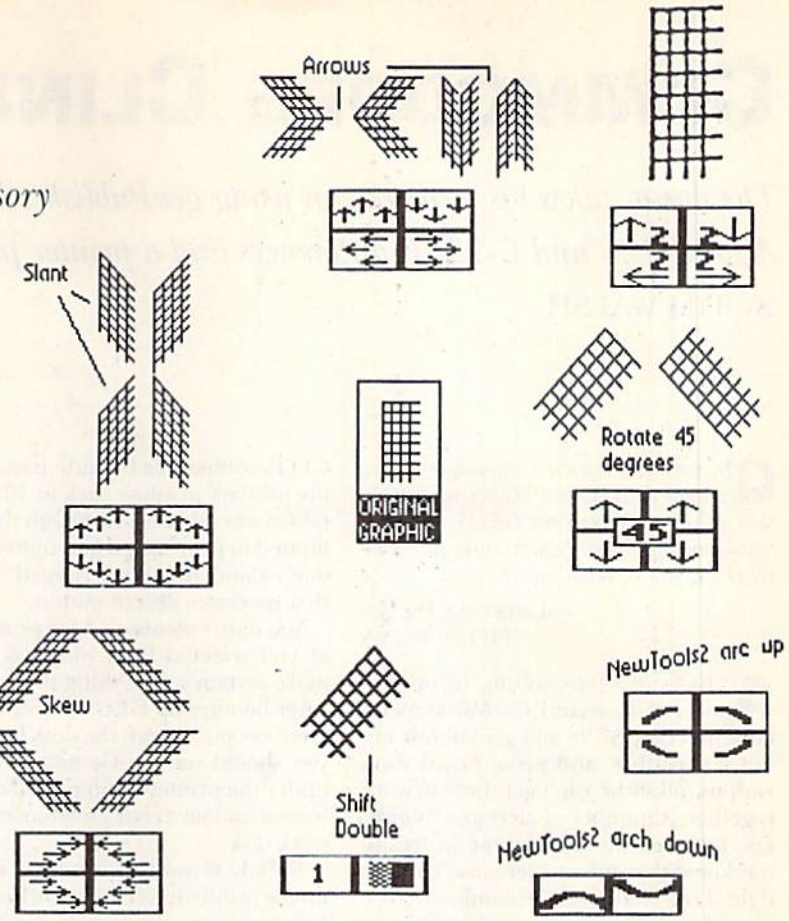
From p. 25.

```
1080 PRINT"{SHFT CLR}"   :REM*81
1090 PRINT"{CRSR DN}{CTRL 8}ENT
     ER THE FIRST LINE OF THE T
     ITLE                 :REM*201
1100 PRINT"(UP TO 40 CHARACTERS
     )                    :REM*114
1110 G$="":INPUTG$:GOSUB1550:T1
     $=G$                 :REM*154
1120 IFLEN(T1$)>40THENPRINT"{CT
     RL 3}{CRSR DN}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1090              :REM*82
1130 PRINT"{CRSR DN}{CTRL 8}ENT
     ER THE SECOND LINE OF THE
     TITLE                :REM*144
1140 PRINT"(UP TO 40 CHARACTERS
     )                    :REM*42
1150 G$="":INPUTG$:GOSUB1550:T2
     $=G$                 :REM*71
1160 IFLEN(T2$)>40THENPRINT"{CR
     SR DN}{CTRL 3}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1130              :REM*134
1170 PRINT"{SHFT CLR}{CTRL 7}";
                          :REM*185
1180 IFLEN(T1$)<40THENFORX=1TO(
     20-(LEN(T1$)/2)):PRINT" ";
     :NEXT                :REM*120
1190 PRINTT1$             :REM*13
1200 IFLEN(T1$)=40THENPRINT"{HO
     ME}{CRSR DN}";       :REM*204
1210 IFLEN(T2$)<40THENFORX=1TO(
     20-(LEN(T2$)/2)):PRINT" ";
     :NEXT                :REM*52
1220 PRINTT2$             :REM*44
1230 RETURN               :REM*89
1240 PRINT"{SHFT CLR}{CRSR DN}{
     CTRL 2}ENTER THE FIRST LIN
     E OF THE TITLE"      :REM*161
1250 PRINT"FOR SIDE 1 (UP TO 19
      CHARACTERS)         :REM*213
1260 G$="":INPUTG$:GOSUB1550:T1
     $=G$                 :REM*35
1270 GOSUB1550            :REM*64
1280 IFLEN(T1$)>19THENPRINT"{CR
     SR DN}{CTRL 3}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1240              :REM*250
1290 PRINT"{CRSR DN}{CTRL 2}ENT
     ER THE SECOND LINE OF THE
     TITLE                :REM*82
1300 PRINT"FOR SIDE 1 (UP TO 19
      CHARACTERS)         :REM*231
1310 G$="":INPUTG$:GOSUB1550:T2
     $=G$                 :REM*231
1320 IFLEN(T2$)>19THENPRINT"{CR
     SR DN}{CTRL 3}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1290              :REM*230
1330 PRINT"{CRSR DN}{CTRL 2}{CO
     MD 6}ENTER THE FIRST LINE
     OF THE TITLE         :REM*15
1340 PRINT"FOR SIDE 2 (UP TO 19
      CHARACTERS)         :REM*43
1350 G$="":INPUTG$:GOSUB1550:T3
     $=G$                 :REM*173
1360 IFLEN(T3$)>19THENPRINT"{CR
     SR DN}{CTRL 3}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1330              :REM*34
1370 PRINT"{CRSR DN}{COMD 6}ENT
     ER THE SECOND LINE OF THE
     TITLE                :REM*253
1380 PRINT"FOR SIDE 2 (UP TO 19
      CHARACTERS)         :REM*67
1390 G$="":INPUTG$:GOSUB1550:T4
     $=G$                 :REM*106
1400 IFLEN(T4$)>19THENPRINT"{CR
     SR DN}{CTRL 3}TITLE TOO LO
     NG. TRY AGAIN.{CRSR DN}":G
     OTO1370              :REM*50
1410 PRINT"{SHFT CLR}{CTRL 7}";
                          :REM*170
1420 IFLEN(T1$)<19THENFORX=1TO(
     10-(LEN(T1$)/2)):PRINT" ";
     :NEXT                :REM*84
1430 PRINTT1$             :REM*253
1440 PRINT"{CRSR UP}{20 CRSR RT
     s}";                 :REM*150
1450 IFLEN(T3$)<19THENFORX=1TO(
     10-(LEN(T3$)/2)):PRINT" ";
     :NEXT                :REM*14
1460 PRINTT3$;            :REM*76
1470 PRINT"{HOME}{CRSR DN}";
                          :REM*45
1480 IFLEN(T2$)<19THENFORX=1TO(
     10-(LEN(T2$)/2)):PRINT" ";
     :NEXT                :REM*14
1490 PRINTT2$             :REM*49
1500 PRINT"{CRSR UP}{20 CRSR RT
     s}";                 :REM*218
1510 IFLEN(T4$)<19THENFORX=1TO(
     10-(LEN(T4$)/2)):PRINT" ";
     :NEXT                :REM*171
1520 PRINTT4$;            :REM*141
1530 PRINT"{HOME}{CTRL 2}"
                          :REM*201
1540 RETURN               :REM*148
1550 IFG$=""THENRETURN    :REM*198
1560 TP$="":FORX=1TOLEN(G$)
                          :REM*94
1570 TC=ASC(MID$(G$,X,1))
                          :REM*208
1580 IF(TC>=32ANDTC<=95)OR(TC>=
     192ANDTC<=222)THENTP$=TP$+
     MID$(G$,X,1)         :REM*8
1590 NEXT:G$=TP$          :REM*66
1600 RETURN               :REM*200
1610 PRINT"{HOME}         :REM*103
1620 FORX=1TO21:PRINT:NEXT
                          :REM*62
1630 POKE808,237          :REM*247
```

GEOWATCH

NewTools, a popular geoPaint accessory is now even better.

By FOSTER McCOWAN



Above figures: A graphic image (center) is manipulated using NewTools 2. At bottom of page, the NewTools 2 toolbar as it appears on the geoPaint screen.

WITH ALL OF GEOPAINT'S bells and whistles, it seemed that users would never need another graphics package. Sixteen tools and shapes, countless fills and brush variations, text capabilities—what *more* could you want? David Ferguson knows.

Ferguson is one of the talented independent programmers who have started their own small companies to augment the modest corporate support for Commodore GEOS. Through Quincy Softworks, he has turned out some magnificent programs, including Multi-Print Labeler, geoStamp and DweezilDisks I and II.

DweezilDisk I, a disk of geoPaint enhancements, is chock full of applications, desk accessories, and associated files that run on both the C-64 and C-128. This time, geoWatch focuses on the disk's greatly improved version of the NewTools program, a desk accessory for modifying and manipulating geoPaint graphics that is available on QuantumLink. The impetus for the NewTools revision came from the original version's incredible popularity there—over 2000 copies were downloaded in its first few weeks on the network!

NewTools 2 offers nine basic tools, most of which have the ability to change graphics in four different directions. They provide capabilities never before possible on a Commodore. (See the figures for illustrations of each.) The nine NT2 tools are:

Skew—Shifts each row of pixels in the image one column to the right or left, from the top or bottom.

Slant—Shifts each column of pixels in the image one row up or down, starting from the left or right side.

Arrow—Transforms the image into an arrow that points left, right, up or down.

Rotate—Rotates a graphic 45 degrees up-left, down-left, up-right or down-right.

Double—Increases the image's size by a factor of two.

Triple—Increases the size by a factor of three.

Arc—Curves the image in one of four directions.

Arching—Curves the image into a symmetrical upward or downward arch.

Shift Right—Increases print density by copying each column of an image one pixel to the right. This is useful for fine-tuning a graphic that's been rotated with the 45-degree tool, because some density is lost during rotation.

The new tools are each aptly represented by an icon in the familiar point-and-click interface. The NT2 toolbar runs along the bottom edge of the geoPaint screen (as it appears below), completely covering the color palette, page indicator and pattern selector. NT2 is used with completed geoPaint images, so although the geoPaint toolbar is visible, none of its tools will work while NT2 is running. And, like most other well written GEOS programs, NT2 provides lots of keyboard shortcuts.

So, what do you do with all these features? If you don't immediately see any possibilities, try this: Curve some text with the arcing tool. Then turn it into a photo scrap and import it into geoPublish to use as a professional-looking text effect for flyers or newsletters. Or, print your geoPublish document to geoPaint and manipulate entire segments of it there.

At $17.95, DweezilDisk I is a bargain, particularly when you consider that the disk also offers Create Patt, an excellent fill-pattern creator that lets you save patterns for later use; PattDa, which loads pattern files into memory; AutoPattA, an autoexec routine that loads a predetermined pattern file into memory when you boot GEOS; AutoPattB, an autoexec that lets you select a pattern upon booting; plus more than 90 files of 32 patterns each to help you get started.

David Ferguson, known as DiBieF on Q-Link, accepts questions and comments by E-mail. ■

Foster McCowan is a C-64 GEOS lover who hails from the great state of Texas.

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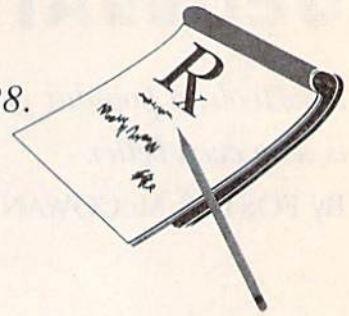
COMMODORE CLINIC

The doctor takes his medicine on using geoPublish with GEOS 128. Also, C-128 and C-128D differences and a printer predicament.

By TIM WALSH



Q *In your most recent Commodore Clinic column (July/August '92), you mention that geoPublish requires GEOS 64. Not true—my copy of geoPublish works fine with GEOS 128 2.0. What gives?*

—LAWRENCE PALLEN
PITTSBURG, PA

A The mail keeps rolling in on this one! For the record, GeoWorks maintains that GEOS 128 and geoPublish are not compatible; and we've heard from various folks who can't get them to work together. A number of alert geoPublishers, however, wasted no time in letting me know that my answer wasn't watertight. I received several voluminous, fact-filled letters that could easily qualify as crash courses in 128 geoPublishing!

With due credit to my learned readers, here's the straight scoop. Early versions of geoPublish, now long out of production, were unquestionably incompatible with GEOS 128. Later versions of geoPublish, however, seem to work fine in *40-column* 128 mode on the C-128, *unless* —to further complicate matters—you have the earliest version of GEOS 128 (1.0); it won't work with geoPublish.

If that's not confusing enough, bear in mind that if your copy of geoPublish is initialized with GEOS 64, it won't work with GEOS 128. All complications aside, if you have a new copy of geoPublish *and* a new copy of GEOS 128 2.0, the two programs should get along.

Q *I have used GEOS 64 2.0 for months and enjoy it immensely. I can't get the program to print correctly, however. I have a C-64, a 1541 and a Xetec SuperGraphics Jr. printer interface, which I use with a Star Gemini 10X printer.*

The printer and printer interface combination seems to work fine with other software packages. (In fact, I used them to print this letter.) Please let me know what I'm doing wrong with GEOS.

—DAVID MARTINEZ
EAST PATCHOQUE, NY

A It's been a long time since I used a Gemini 10X printer, but I know it's GEOS compatible because it was one of my primary printers back in 1986 when GEOS was released. Although the 10X is limited in print speed and options by today's standards, it's a rugged machine that produces decent output.

You didn't mention which printer driver you selected from within GEOS, so make certain you're using the right one. After booting up GEOS, select the Preferences option from the deskTop. There you should see the Gemini 10X driver under the printer options. Make that selection and save your preferences to your work disk.

For GEOS work, it's a little tricky setting up the printer interface to work just right. GeoWorks recommends setting DIP switches 1–4 to the off position on the Gemini 10X. You can set the switch settings on any model Xetec printer interface to either Transparent or Semi-Transparent mode, and try printing from both geoPaint or geoWrite. Rest assured that unless there's a hardware glitch, your Gemini printer will work fine with GEOS.

Q *I've been a Commodore 128 user for a long time and I recently purchased a Commodore 128D. What are the differences between the two computers? Also, I would like to know if there's an alignment kit that contains the tools needed to align Commodore 1541 and 1571 disk drives.*

In the near future, I plan to purchase a video monitor, a modem and a printer. I basically use just utilities, and occasionally play games. Would you please tell me which combination of the three above items would be best for the hardware that I already own?

—JOHN STRUNCK
WACO, TX

A To address your first question, there are both cosmetic and internal differences between the C-128 and the C-128D. For the benefit of Commodore users who are unfamiliar with the computers, I'll give a brief description of some of the differences.

For starters, the C-128 lacks the detachable keyboard enjoyed by the C-128D. Also, the C-128D has a built-in 1571 disk drive, whereas the standard ("flat") 128 has to rely on external drives. The other major difference in appearance is the C-128's external, rather than internal, power supply.

Inside the computers, the differences continue. All C-128Ds, and a few of the later model C-128s, are equipped with 64K of video RAM, which make them more versatile for programs that can take advantage of that RAM, such as the graphics program Basic 8. Also, the C-128D's internal 1571 disk drive has upgraded ROMs that work better than those in the original 1571.

Since we're on the subject of disk drives, your second question is a little bit misleading. There are no "tools" required to align the drives beyond the old Phillips screwdriver that you'll find in the kitchen drawer. The procedure is explained in detail in the 1571 Alignment kit originally sold by Free Spirit Software. It comes with a program for making the job easy to accomplish.

Regarding your question about purchases: For a video monitor I recommend the Commodore 1084, which comes with all the cables needed to connect to the C-64, C-128 or Amiga. For a good 1200-baud modem, the Commodore 1670 modem is a safe choice; it plugs directly into the user port on both the C-64 and C-128.

As far as choosing a good printer, I suggest that before you make a decision you check out the reviews I've written for the Curtain Call column in the last few issues of *RUN*. The newer Panasonic, Star Micronics and Seikosha printers I've examined all offer excellent-quality output and are all fine choices. You need to consider the price differences weighed against the features you want.■

Do you have a problem with or question about your Commodore computer system, software or programming? Just send your questions to Commodore Clinic, RUN *Magazine, 80 Elm St., Peterborough, NH 03458. Queries are answered only through this column, and due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.*

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From p.27.

```
    NT"{5 SPACEs}CHANGE WHICH L
    ETTER?{5 SPACEs}"   :REM*159
83Ø POKEVP,24:POKEHP,8:SYSS:PRI
    NTTAB(18)"{3 SPACEs}";
                        :REM*27
84Ø GOSUB1Ø2Ø           :REM*121
85Ø IF(LEN(EQ$)<>3)OR(MID$(EQ$,
    2,1)<>"=")THEN82Ø   :REM*249
86Ø IFEQ$="==="THENPC=Ø:SP=7:FO
    RR=1TOSZ:SOL$(R)=TE$(R):NEX
    T:GOSUB11Ø:GOTO93Ø  :REM*216
87Ø IFLEFT$(EQ$,1)="="ORRIGHT$(
    EQ$,1)="="THEN82Ø   :REM*144
88Ø POKEVP,23:POKEHP,8:SYSS:PRI
    NTW$:PRINTTAB(18)"{3 SPACEs
    }";                 :REM*86
89Ø FORR=1TOSZ:IFLEFT$(EQ$,1)=C
    O$(R)THENSOL$(R)=RIGHT$(EQ$
    ,1)                 :REM*61
9ØØ NEXT:GOSUB11Ø       :REM*242
91Ø MM=Ø:FORR=1TOSZ:IFSOL$(R)<>
    TE$(R)THENMM=1:R=SZ:REM*115
92Ø NEXT:IFMM=1THEN82Ø  :REM*13Ø
93Ø POKEVP,23:POKEHP,1Ø:SYSS:PR
    INT"{2Ø SPACEs}":PRINTTAB(1
    7)"{6 SPACEs}";     :REM*1Ø8
94Ø IFEQ$="==="THENPOKEVP,23:PO
    KEHP,8:SYSS:PRINTW$:GOTO98Ø
                        :REM*1Ø4
95Ø POKEVP,22:POKEHP,12:SYSS:PR
    INT"CONGRATULATIONS,"
                        :REM*93
96Ø PRINT"YOU SOLVED THE PUZZLE
     IN ";              :REM*115
97Ø PRINTMID$(TI$,3,2)" MIN. "M
    ID$(TI$,5,2)" SEC.";:REM*92
98Ø GOSUB37Ø:POKEVP,24:POKEHP,7
    :SYSS:PRINT"PRESS ANY KEY T
    O CONTINUE";        :REM*119
99Ø POKE198,Ø:IFEQ$<>"==="THENS
    YS679               :REM*217
1ØØØ GETD$:IFD$=""THEN1ØØØ
                        :REM*58
1Ø1Ø PC=Ø:SP=7:GOTO72Ø  :REM*98
1Ø2Ø POKEVP,24:POKEHP,18:SYSS
                        :REM*128
1Ø3Ø LE=3:I2=13:M=8:GOSUB17Ø:EQ
    $="":FORR=1TOTC-1:EQ$=EQ$+
    HO$(R):NEXT:RETURN:REM*113
1Ø4Ø PRINT"{SHFT CLR}{CRSR DN}"
    TAB(12)"CRYPTO PUZZLER{4 C
    RSR DNs}":RETURN    :REM*44
1Ø5Ø PRINT"{SHFT CLR}":POKE5328
    Ø,14:POKECO,14:END  :REM*74
1Ø6Ø GOSUB1Ø4Ø:PRINTTAB(8)"{2 C
    RSR DNs}ENTER FILENAME (OM
    IT CP.)"            :REM*223
1Ø7Ø PRINTTAB(12)"1-13 CHARACTE
    RS"                 :REM*239
1Ø8Ø POKEVP,11:POKEHP,13:SYSS:L
    E=13:M=1Ø:I2=13:GOSUB17Ø:N
    A=TC-1              :REM*137
1Ø9Ø NA$="":FORR=1TONA:NA$=NA$+
    HO$(R):NEXT         :REM*13Ø
11ØØ OPEN15,8,15:OPEN8,8,8,"Ø:C
    P."+NA$+",S,W":GET#15,ER
                        :REM*69
111Ø IFERTHENCLOSE8:CLOSE15:GOT
    O1Ø6Ø               :REM*212
112Ø PRINT#8,SZ:FORR=1TOSZ
                        :REM*51
113Ø SV$=CHR$(ASC(TEXT$(R))OR12
    8)                  :REM*215
114Ø PRINT#8,SV$:NEXT   :REM*119
115Ø FORR=1TO26:PRINT#8,AI(R):N
    EXT:PRINT#8,CHR$(13)
                        :REM*42
116Ø GET#15,ER:IFERTHENCLOSE8:C
    LOSE15:GOTO1Ø6Ø     :REM*63
117Ø CLOSE8:CLOSE15:SP=7:GOTO72
    Ø                   :REM*194
118Ø FORR=MLTOML+6Ø:READDT:POKE
    R,DT:NEXT:          :REM*92
119Ø FORJ=679TO693:READK:POKEJ,
    K:NEXT:RETURN       :REM*123
12ØØ DATA 1Ø6,144,11,224,32,144
    ,7,224,48,176,3,24,144,39,
    1Ø6,144,11,224,48,144
                        :REM*146
121Ø DATA 7,224,58,176,3,24,144
    ,25,1Ø6,144,11,224,58,144,
    7,224,65,176,3,24,144
                        :REM*1Ø3
122Ø DATA 11,1Ø6,144,12,224,65,
    144,8,224,91,176,4,169,1,2
    4,96,169,Ø,24,96    :REM*222
123Ø :                  :REM*13
124Ø DATA 172,32,2Ø8,2Ø2,142,32
    ,2Ø8,165,198,24Ø,248,14Ø,3
    2,2Ø8,96            :REM*252
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SOFTWARE GALLERY

Are repackaged software bundles really a bargain? Reviews of three high-profile collections. Plus GEOS games and Hangman's Hazard.

By JOHN RYAN

FREE SPIRIT GRAPHICS COLLECTION .....B

A Good Bargain Despite Weak Documentation

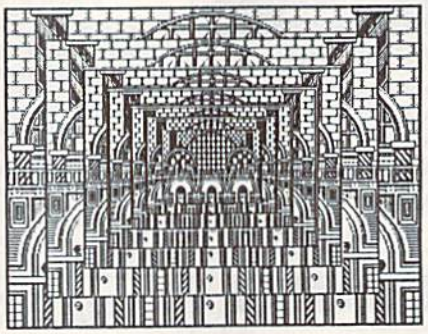
As this market slims down, more and more companies are cleaning out their surplus software, rebundling it and calling it "bargain collections." How worthy are these collections of your precious buying dollars?

This first from Briwall, a collection of Free Spirit Software's graphics utilities, is really not bad. We're not talking sprite or character editors here, and we're not referring to paint programs. The Free Spirit Graphics Collection contains five programs that let you convert graphics files from one format to another, construct eye-catching computer presentations, manage graphic screen dumps and manipulate high-resolution graphics from just about any paint program.

Billboard Maker is unique in that it enlarges your existing graphics to poster size (or tabletop size!) with less distortion and jagging than you'd expect with low-resolution graphics. Its special routines print the results in strips that are easily linked together. The program supports framing, picture cropping, several flip and invert operations and text overlays. It can import files from Doodle, Koala Pad, Flexidraw, Animation Station, Super Sketch, Blazing Paddles, Print Shop or Computer Eyes formats.

For all its power and versatility, getting around the program takes work, not because of any programming flaws, but simply because the manual is so poor. In fact, all five programs in this collection suffer from poor documentation. Still, if you rely on signs, posters or banners to get your point across, Billboard Maker could be your program of choice.

Screen F/X, the most ambitious program in the collection, is an all-in-one presentation manager—sort of multimedia for those with champagne taste and a beer budget. Screen F/X is a script-based special effects generator that can handle an almost unlimited number of



Free Spirit's Billboard Maker lets you blow up artwork to poster size.

effects. Using your text, and graphics generated by Print Shop, Newsroom or a paint program, Screen F/X will present the material using a variety of fades, wipes, tumbles, background effects and even simulated animation effects.

Screen F/X is actually a three-program set: F/X Editor, where you build your scripts; F/X Processor, where you build the screens; and F/X Executor, a run-time program, which means that you can send your presentation disks out to people who don't have the F/X program.

Again, while F/X is probably the most powerful C-64 product of its kind, its manual is woefully inadequate, rendering the advanced features effectively unachievable for the graphics novice.

The third program in the Free Spirit Graphics Collection, Icon Factory, is an image conversion program that lets you use Newsroom, Print Shop or Print Master files with popular paint programs, such as Doodle, Koala and Super Sketch. It not only converts files to work with the other programs, but also merges and overlays files with one another. With Icon Factory, you can create a drawing with Doodle, then overlay a Newsroom graphic over the drawing. It even expands clip art into full-sized pictures. Be forewarned, however, that expanding operations can be fairly time-consuming.

Photo Finish is an interesting program if you like to print your graphics handiwork. It goes well beyond the simple screen dump; it handles high-resolution, multicolor and grey-scale pictures, as well as graphics from Print Shop, Newsroom and Print Master. Some of the print tests I ran looked almost as good on paper as they did on my monitor.

Finally, we come to Grafix-Link, a conversion utility for translating graphics files to and from the GEOS format. You can load from and save to geoPaint, Billboard Maker, Doodle, Flexidraw and Computer Eyes files. Likewise, you can load Newsroom photos, Print Master and limited Print Shop graphics. If you are a geoPaint user and have been stifled by an inability to view other graphics formats, then Grafix-Link is a must-have.

The programs in this collection are useful, powerful and relatively unique. The documentation is frustrating, but, if you've been looking for utilities like these, then patience and a little trial and error will get you up and running.

($39.95/C-64. Briwall, 56 Noble St., Kutztown, PA 19530)

SOFTWARE REPORT CARD

Outstanding	A
Good	B
Just Okay	C
Less Than Okay	D
Crummy	F

COSMI'S 20 SOLID GOLD ENTERTAINMENT HITS .....C–

The Oldies in This Collection Weren't All Chart-Busters

Many vendors rereleasing their old products have taken to labeling them with ostentatious titles that begin with "solid gold" or "golden oldies." For me, these titles raise a red flag. In software as in life, I find that braggarts rarely live up to their self-styled images.

Cosmi has put together two such packages. Their entertainment collection, Top

20 Solid Gold, trots out 20 games that were rightly put out to pasture some time ago. Some of these games sold fairly well when they were first released. Most, however, did not.

How, then, does Cosmi justify the "Solid Gold" title? Good Question.

The most successful game in the collection is Paul Norman's Forbidden Forest, which was immensely popular when it was released several years ago. Norman's musical genius, as well as the graphics and animation, were considered amazing . . . *at the time*.

Forbidden Forest pits you, a lone archer, against an onslaught of nasty creatures as you move through a quasi-3D background. There are seven playing levels and three difficulty levels to keep you engaged for a long while. Although Forbidden Forest can be a bit gory (as your on-screen character is often torn to bloody pieces), the game is a classic.

The sequel, which is also included, doesn't quite live up to its predecessor's legacy. The archer in Beyond Forbidden Forest is much larger than the original, and the scrolling screens allow your character to move in and out of the scenery —something Cosmi calls 4D Omnivision. The pretentious opening credits and blaring soundtrack are tedious.

The best Cosmi's multigame disk has to offer is Forbidden Forest—good, but outdated.

From there, the pickings in Top 20 Solid Gold are slim. The three auto racing games weren't much fun even when they were first released. In fact, the graphics for both Motor Mania and Talledega are so antiquated, I was awestruck to remember I was once fascinated by them.

There are several games in this collection that you might recognize, such as Chernobyl, the nuclear reactor simulation. Solid Gold also includes a decent chess simulation called Grand Master Chess, as well as a mildly amusing arcade game called High Noon.

I'm afraid the remaining games range from the simply ridiculous to the downright boring. But then, what did I expect from games with titles like Potty Pigeon, Fearless Fred and Psycastria?

Cosmi doesn't really have a history of mega-hits on which to rest its laurels. Companies like Electronic Arts and Accolade may have dozens of oldies that would be perfect candidates for a hits collection, but not Cosmi. (Put Archon, Seven Cities of Gold, Mule and Wasteland together and watch the copies fly!) Forbidden Forest and Beyond Forbidden Forest may be worth the $13 you'll pay, but I'd rather plunk that money down toward something more up-to-date.

($13/C-64. Cosmi, 431 N. Figueroa St., Wilmington, CA 90744)

Top 20 Software Tools.....C

Inexpensive, but Hardly the 20 Best Productivity Tools Available

The second well-advertised collection offered by Cosmi covers the productivity arena. Cosmi apparently felt the need to ►

Special GEOS Report: Productivity Bashers, Part 2

Another Less-Than-Businesslike Peek at GEOS Gameware

Since last highlighting productivity-bashing geoGames in the September/October '91 geoWatch column, my gaming scouts have reported a substantial increase in frivolity among once-serious geoUsers. Therefore, I decided to continue with another batch of delightfully distracting games.

I'll start with *RUN*'s own **geoYahtzee**. This program by Joe Buckley takes all the work (rolling, scoring, adding) out of the popular dice game. It also offers mouse control and both gray-scale and color graphics. I rate geoYahtzee in the B+ range, only because it doesn't supply a one-player option. Other than that, it rates a big A!

I once boasted I could easily win at Ed Pflager's GEOSTacToe. Now I've found the even more devilish **3-D Tic Tac Toe** by Marc Brouillette. This captivating game has a 4 × 4 × 4 grid plus three difficulty levels, and lets you play against either a person or the computer. Of course, I selected Expert mode; after several hours I hadn't won a single game!. A++, Mr. Brouillette!

Next up is **geoUno**, a computer version of the favorite card game. Although I can't claim an honest win against my geoUno opponents, I did waste a satisfying afternoon. (Of course, that's the whole point!)

Want to add a little fantasy to your reverie? Become a law-enforcement or criminal superstar in **B.A.D.G.E.**, a role-playing game by D.M. Wolfe. Rather than supplying the scenario, this geoWrite file provides everything you need to construct your own world of law and disorder.

Quadran, by the fantastically fiendish Davey 4, is an "off-screen" chess/tic-tac-toe combination that's bound to please. Converted to geoPaint, this file provides instructions and a score card, and actually prints out a gameboard in either black-and-white or color. Use what you find around the house (paperclips, toothpaste caps, pocket change) for playing pieces, and you and a friend can avoid working for hours.

If you prefer toys, try a one-note-at-a-time piano. **C64Piano** is a Basic program that can be run from GEOS, then, with RBoot on your workdisk, returns you to where you started on the deskTop with a single keystroke.

Last but not least, **geoWar** from Lysle Shields is a colorful mouse-controlled computer version of Risk that pits you against up to five human or computer players for control of the world. One particularly interesting option is the neutral computer opponent, whose countries will fall easily before your rolling thunder.

All the games I've mentioned here are available from bulletin boards and telecommunications networks, such as QuantumLink, the Commodore-specific network. To find the files on Q-Link, go to the Software Libraries in the Software Showcase department, use the Search option for GEOS Software, and type in the name of each file.

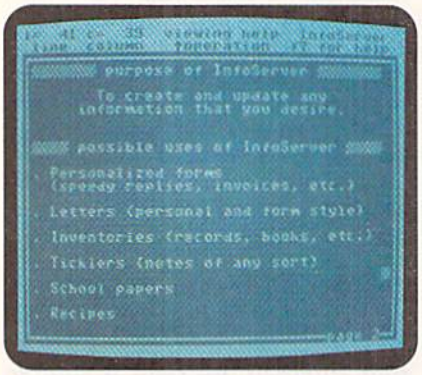
All the games can be accessed from inside the GEOS environment and will return you there when you're done playing. If you use a RAM disk, place your favorite games on it, along with other frequently used files and RBoot.

Now, roll up your sleeves and prepare for some serious frivolity!

—Gerry Descoteaux

address those of us who bought our computers to word process and manage home finances. To that end (or maybe some other, less altruistic end) Cosmi put together Top 20 Software Tools.

As with Cosmi's Solid Gold, I'm befuddled by this collection's title: *Top 20*. Top 20 as compared to what? By no stretch of the imagination are the programs on this disk comparable to others currently available. In fact, most of them are slow-loading, Basic (thus a bit kludgy) and omit features that I would expect to find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. School papers
. Recipes

Cosmi's Top 20 Software Tools will cheaply expand your productivity library.

even in a public domain release.

Swift Word, for example, is anything but swift. (It took over a minute to load a three-page document.) Its editing features are basic and the on-disk documentation is atrocious. (To wit: "The cursor is moved on the electronic sheet either during typing, as described below, or with the cursor movement keys, which move it one character at a time left or right, one line at a time up and down, jump it to the top of the page—then to the top of preceding page....")

Next is a collection of programs under the title of Swift Server. Among them you'll find Date Server, an electronic appointment book and calendar. This no-frills program lets you enter comments on any day of any year. Again, this Basic program is rather slow, and I was thrown out to Direct mode when I accidentally tried to print a calendar without having the printer on.

Thankfully, Swift Data Base is easy to use and relatively fast, especially when compared to the other programs on the disk. Even so, this primitive database provides only eight fields, no arithmetic functions and limited search functions. Swift Data Base is more like a computerized 3 × 5 card file than a conventional database. You cannot customize the data screens, nor can you divide or separate fields with keyboard character graphics. Records are limited to 200 per file. Information is presented in a linear fashion. If you're looking for a quick and extremely simple database, then Swift Data Base may be a good deal. But, again I will stress, this is a no-frills program.

The fastest program in this package has to be the spreadsheet, and it offers most of the features you'd expect to find in a 40-column spreadsheet. There are over 6,600 cells available, plus you can split the screen, jump to any cell, set the column length of each cell and easily edit data. Swift Spread Sheet supports a wide variety of formulas and macros.

The fare is a bit better in the creativity area, where you'll find sprite, character and sound editors that are easy to use and relatively fast. While not quite as sophisticated as Ultra Sprite or Ultra Font, the graphics editors offer all the features you need to create sprites and alternate character sets.

On the same tack, the music composer and sound editors are relatively easy to use and nice to experiment with. A bare-bones painting program is also included, along with utilities to create graphics screens, draw banner-sized letters, and create animated screens using sprite and character sets.

The remaining programs are "desktop" utilities designed to be TSR (Terminate and Stay Resident) programs. Among them are a calculator, a digital clock, a note pad and an automatic phone dialer. I get the feeling that these desktop utilities were designed to be resident with the programs in the Top 20 collection and not other commercial programs. While I could move the memory locations of the desktop utilities, I could not get the utilities to work with several of my favorite programs, including Run Script 128 and Run Shell.

At the heart of any review, I have to ask: Is it worth the money? Well, maybe. If you're new to Commodore computing or decidedly software-poor, then these programs will cheaply put you on the road to a more productive life. How fast you'll move down that road, however, is another matter.

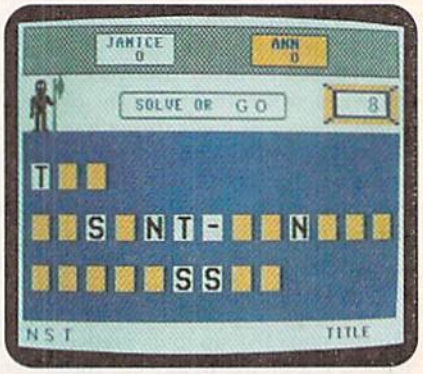
($13/C-64. Cosmi, 431 N. Figueroa St., Wilmington, CA 90744)

HANGMAN'S HAZARD.....B-

This Wheel of Fortune Clone Is Well Done, but Not Unique

Hangman's Hazard is a variation on the classic hangman game everybody played in grade school. This version has a small twist on the usual theme: Two to four players have been imprisoned in a dungeon. To gain freedom you must acquire at least 60 points or win the majority of the ten rounds of play. If you lose, you fall victim to the "twist" I mentioned (as in "twisting in the wind").

I got the distinct impression that Hangman Hazard's creators, Darkside Software (whose name seems somehow apropos), put more creativity into the game's opening visuals than they did the game itself. Admittedly, the animation is nifty, detailing a gloomy dungeon and a hangman marching his prisoners to the



Hangman's Hazard mixes Wheel of Fortune with traditional Hangman.

gallows, but from here the graphics quality slips several notches.

The bulk of game-play takes place on a screen not dissimilar to many PD hangman games I've seen. As play begins, you are presented with a series of blank rectangular spaces that represent the letters of the puzzle. Pressing the space bar determines the points for correctly guessed letters, or whether you'll lose a turn or all your points. Working against a timer, you select a consonant. If a match is found, the letter will appear in the square and points are awarded. The same player continues until a wrong letter is selected. You can attempt to solve the puzzle at any time during your turn. The winner of each round gains all the points for that round and moves closer to freedom on the dungeon screen. (If you tire of the macabre graphics, a single keypress will quickly return you to the game.)

With over 3000 word puzzles, it's more likely you'll run out of interest before you run out of challenges. The game is fast, it plays smoothly and serves up some good brain teasers. All in all, however, it's really nothing more than another Wheel of Fortune clone. You can download similar games from any bulletin board system—free of charge.

($19.95/C-64. Darkside Software, 501 Miramar Lane, Palm Beach Gardens, FL 33410) ■

RUN's Checksum Program and Typing Hints

By Bob Kodadek and the *RUN* Editorial Staff

CHECKSUM IS A PROGRAM that proofreads your typing when you enter a listing from the magazine. It assigns a numerical value to each character that you type, adds up the values of the line you typed and displays the sum. (Checksum, therefore, means that it *checks* your typing by *summing* the characters.) It also verifies that you have typed the characters in the proper order. (Checksum won't tell you if you miss a line of code entirely, so verify that yourself.)

Checksum runs in the background when you type in lines of programming code. Whenever you type a line and press RETURN, the Checksum will display a value. Compare that value to the value published next to the line of code in the magazine (eg., :REM*123). If the numbers match, you've typed the line correctly. Simple.

Typing in Checksum and Other Good Advice

First, type in Checksum carefully from Listing 1 below. Be sure to press RETURN after every line to enter it into memory. Once you have typed the program, save it. In fact, save it a few times while you're typing, just to be safe. (This is good advice whenever you type in a program. I usually change the name each time I save; for example, Supergame1, Supergame2, and so on.)

Double check your work, making sure that you've typed in every line, and you've pressed RETURN after every line you've typed. If you make errors when typing in Checksum, a test run of Checksum will tell you which line is incorrect. (This safety feature works only in the Checksum program itself. It does not apply to any other listings in the magazine.) Whenever you find a typing error (in any program listing), fix it, press RETURN to enter the change, *save the program again*, and try another run. Repeat as often as necessary.

Important tip: Don't get discouraged if the program won't run. Be patient. Be thorough. It will work eventually.

You'll know your Checksum is ready when you see the line

```
TO TOGGLE ON OR OFF, SYS{number}
```

Using Checksum and Even More Good Advice

When you're ready to type in your first listing from the magazine, load and run Checksum. Make a note of the number that is displayed on the screen (49152 for the C-64; 3328 for the C-128). To activate and deactivate Checksum, type SYS followed by that number, then press RETURN. You need to have Checksum active whenever you're typing in a listing. Checksum must be deactivated, however, when you run the new program.

The next step is typing in a new program listing as it appears in the magazine. As you begin, you'll notice that at the end of each line is a colon, followed by the letters REM, an asterisk and a 1–3 digit number, like this:

```
:REM*123
```

Don't type any of this in: It's simply the Checksum value. Stop typing before the colon and press RETURN. If you've typed the line correctly, the number displayed on the screen will match the Checksum value. If the numbers don't match, you've made a mistake. Check the line carefully, make your changes and press RETURN. The computer won't know you've made a change unless you press RETURN to enter it.

A few type-in hints: The Checksum does not verify blank spaces in the program lines unless they are within quotation marks, because adding or omitting such spaces will not affect the operation of the program. The exception to this is hexadecimal Data statements. These are the Data statements, such as this one, that don't have commas:

```
100 DATA 12345678901234567890*12345678901234567890*123
    45678901234567890*
```

In statements such as these, you must have one space between the word DATA and the numbers that follow. Checksum will not catch that error. One other common mistake is to type in the spaces that fall under the line number. In the example above you should not put a carriage return or spaces between the 3 and the 4 where the line breaks.

What the Heck Are Curly Braces?

As you type, you will undoubtedly be confused the first time you see curly braces {}. These braces mean "perform the function explained within." For example, {22 SPACES} means that you need to press the space bar 22 times. Don't type the braces. Other common examples are:

{SHIFT CLR}—hold down the SHIFT key and press the CLR-HOME key.
{2 CRSR DNs}—tap the cursor down key twice.
{CTRL 1}—hold the CONTOL key and press the 1 key.
{COMD T}—hold down the COMMODORE key and press the T key.
{5 LB.s}—press the British pound key (£ not #) 5 times.

Keep Your Chin Up—All You Need Is Patience

Continue typing in your program, saving often and checking each checksum value with the one in the magazine, until you've finished the listing. Phew! So now you're ready to run your program, right? Not quite. First, save it. Second, deactivate Checksum by typing SYS followed by 49152 for the C-64 or 3328 for the C-128.

Now you can run. Don't be discouraged if you still get an error. It happens. There are only two errors that Checksum won't catch (omitting a line and the Data statement spaces). Use Checksum faithfully. Be patient. Be thorough. It will work eventually. R

Listing 1. RUN's Checksum program.

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(4096)THEN MO=64:SA=49152
30 I=0:CK=0:CH=0:LN=190
40 FOR K=0 TO 16
50 FOR J=1 TO 10:READ B:IF B>255 THEN GOTO 170
60 CH=CH+B:POKE SA+I,B:I=I+1:NEXT
70 READ LC
80 IF LC<>CH THEN GOTO 170
90 CH=0:LN=LN+10
100 NEXT K
110 POKESA+110,240:POKESA+111,38:POKESA+140,234
120 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
130 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 1
    60
140 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+2
    6,165
150 POKESA+39,20:POKESA+41,21:POKESA+123,205:POKESA+12
    4,189
160 POKESA+4,INT(SA/256):SYS SA:NEW
170 PRINT"YOU HAVE A DATA ERROR IN LINE ";LN;"!":END
180 REM DO NOT CHANGE THESE DATA STATEMENTS!
190 DATA 120,162,24,160,13,173,4,3,201,24,884
200 DATA 208,4,162,13,160,67,142,4,3,140,903
210 DATA 5,3,88,96,32,13,67,152,72,169,697
220 DATA 0,141,0,255,133,176,133,180,166,22,1206
230 DATA 164,23,134,167,132,168,170,189,0,2,1149
240 DATA 240,58,201,48,144,7,201,58,176,3,1136
250 DATA 232,208,240,189,0,2,240,42,201,32,1386
260 DATA 208,4,164,180,240,31,201,34,208,6,1276
270 DATA 165,180,73,1,133,180,230,176,164,176,1478
280 DATA 165,167,24,125,0,2,133,167,165,168,1116
290 DATA 105,0,133,168,136,208,239,232,208,209,1638
300 DATA 169,42,32,210,255,165,167,69,168,170,1447
310 DATA 169,0,32,50,142,169,32,32,210,255,1091
320 DATA 32,210,255,169,13,32,210,255,104,168,1448
330 DATA 96,104,170,24,32,240,255,104,168,96,1289
340 DATA 56,32,240,255,138,72,152,72,24,162,1203
350 DATA 0,160,0,32,240,255,169,42,208,198,1304
```

■

CURTAIN CALL

***RUN*'s column where worthy products step into the spotlight and take a bow.**

The Panasonic KX-P2180

Attractive and of high quality, Panasonic's KX-P2180 printer boasts enhancements that set it apart from other 9-pin printers.

It offers a 4K print buffer that's expandable to 32K, 240 character per second printing in Micron Draft mode, two other draft modes and six near-letter-quality print styles. Sharp, well-defined graphics printing is available in seven basic graphics modes, ranging from 60 to 240 dots per inch. It features exceptional paper-handling: Its well-designed paper guide makes printing labels and business envelopes a breeze, and jamming continuous form paper is a thing of the past.

The KX-P2180's true claim to fame, however, is its exceptionally quiet operation. While even experienced printer users might think that stuffing a printer's chassis with sound-muffling material might be all that's needed to quiet a printer, advanced techniques are used on the KX-P2180.

Rather than using heat-retaining insulation and sound deadening materials, selecting the Super Quiet mode from the KX-P2180's control panel activates a process that prints each line in multiple light passes. While this slows down output considerably, it's great for late-night printing when other family members are asleep, because the printing process indeed becomes whisper-quiet.

Those accustomed to the control panels found on other popular Panasonic printers in recent years, such as the KX-P1124 and KX-P1182, will be right at home with the 2180's EZ Set Operator Panel. Once you read the manual and take a few minutes to think through the process, the multifunction buttons and five-by-four grid of lights on the panel make mode selections simple.

If you select the printer's numerous modes from software or your computer's Direct mode, rather than through the control panel, you'll see that there are two printer emulation modes: Epson FX-850 and IBM Proprinter III. By setting the printer to either mode, then selecting the appropriate printer driver from within your software, you have access to the bold, italics, and graphic printing options available from each mode.

In a side-by-side comparison of the Panasonic KX-P2180 and the printer we featured last issue, the Star Micronics NX-2430, I find both printers first-rate for characters and graphics. The Star is faster at graphics, but the Panasonic has it beat for quietness and cost ($299.95).

The Panasonic KX-P2180 is a fine choice for any Commodore owner. Especially attractive is the fact that it will work well with your Commodore and virtually any other computer you may have at home or the office. ■

—Tim Walsh

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